COMMONWEALTH BUREAU OF CENSUS AND STATISTICS,
MELBOURNE.

OFFICIAL
YEAR BOOK
OF THE
COMMONWEALTH OF AUSTRALIA,

CONTAINING AUTHORITATIVE STATISTICS FOR THE PERIOD

1901-1920

AND CORRECTED STATISTICS FOR THE PERIOD 1788 TO 1900.

No. 14.—1921.

Prepared under Instructions from
The Minister of State for Home and Territories,

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PREFACE.

By the Constitution of the Commonwealth of Australia, the Commonwealth is empowered "to make laws for the peace, order, and good government of the Commonwealth, with respect to," *inter alia*, "Census and Statistics." In the exercise of the power so conferred, a "Census and Statistics Act" was passed in 1905, and in the year following the "Commonwealth Bureau of Census and Statistics" was created. The first Official Year Book was published early in 1908. The publication here presented is the fourteenth Official Year Book issued under the authority of the Commonwealth Government.

The inclusion of the total available information in the more important branches of statistics enables this publication to be used wherever it is desired to make a comparative survey of the evolution of this portion of the British Empire. Not only are the results given for the Commonwealth as a whole, but also for each State therein.

The general arrangement of the work, which has received wide approval, corresponds with that of previous issues, and is shewn in the synopsis on pp. xi. to xxvii. immediately following.

In addition, however, to what may be called purely statistical matter, each issue contains special articles dealing at length with some particular subject or subjects of more or less permanent interest. These cannot of course be repeated year after year, but in some instances a brief condensation is given in subsequent issues. Though many articles in Year Books Nos. 1 to 13 have been reduced to synopses or deleted, sufficient indication is given to enable the subject to be traced in previous issues.

The present issue contains a specially contributed article dealing with "Evidences of Past Volcanic Action in Australia," and it may be read in conjunction with articles dealing with the geology and physical features of the continent, which appeared in previous issues.

Amongst new matter incorporated in the various Sections, mention may be made (i) of the conspectus of Income Tax, Land Tax, and Succession Duty Acts of the Commonwealth and States, which appears at the end of Section XX., State Finance, and (ii) of the conspectus of State Acts relating to Diseases in Stock and Plants, and to Noxious Animals and Weeds, appearing at the end of Section XXXIV., Miscellaneous. In addition, a chapter is devoted to the mandated territory of New Guinea (Section XXIX.—New Guinea) with a map of Papua, the territory of New Guinea, and adjacent islands included in the Mandate. Section IV., Population, has been printed in this issue after "Miscellaneous," in order to permit of the incorporation of the latest available information relating to the Census of 1921. A synopsis of the activities of the Agricultural and Stock Departments of the States appears in the Appendix.

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The subject-matter throughout is dealt with, as far as possible, from the following points of view, viz. :—

(i) The development of the individual States. (ii) The progress of Australia as a whole from the earliest times. (iii) The statistical comparison of Australia with other leading countries of the world.

The full text of the Commonwealth Constitution Act and Amendments appears on pages 8 to 26.

The development of Australia has been in many instances very remarkable, and this could be shewn only by tables and graphs dating back to its beginning in 1788. In most cases accurate data are not available for years much before 1860. In such cases, therefore, it would appear sufficient at present to give continuous results from that year onwards.

The great mass of material embodied in each Year Book is always carefully examined, but it would be idle to hope that all error has been avoided. The Commonwealth Statistician desires to express appreciation of the opportunity afforded him of perfecting the matter of the Year Book, by those who have been kind enough to point out defects or make suggestions.

The corresponding years indicated in various sections of this book do not always necessarily refer to the same period, the year ending in some cases on 31st December, 30th June, 31st March, etc. The precise period for which returns are given is indicated where necessary.

Recent information or returns which have come to hand since the various Sections were sent to press may be found in the Appendix, p. 1179.

It is desired to express cordial thanks to the State Statisticians, to the responsible officers of the various Commonwealth and State Departments, and to others, who have kindly, and often at considerable trouble, supplied all desired information.

Mr. G. H. Knibbs, having been appointed Director of the Institute of Science and Industry of the Commonwealth, and having assumed the duties of that position during the currency of the present year, the Year Book has been continued on the lines laid down by him in the previous issues.

JOHN STONHAM,

Editor of the Commonwealth Official Year Book.

COMMONWEALTH BUREAU OF CENSUS AND STATISTICS,

Melbourne, 30th November, 1921.

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STATISTICAL SUMMARY FOR THE COMMONWEALTH, 1871 TO 1919.

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Heading.		Years. 1871.	1881.	1891.	1901.	1911.	1918.	1919.
Population ..	Males	928,918	1,247,059	1,736,617	2,004,836	2,38[illegible]224	2,516,442	2,698,281
	Females	771,970	1,059,677	1,504,368	1,820,077	2,191,644	2,565,237	2,606,141
	Total	1,700,888	2,306,736	3,240,985	3,824,913	4,573,868	5,081,879	5,304,422
Births ..	No.	63,625	80,004	110,187	102,945	122,193	125,739	122,290
	Rate	38.00	35.26	34.47	27.16	27.21	25.00	23.58
Deaths ..	No.	22,175	33,327	47,430	46,[illegible]30	47,869	50,249	65,930
	Rate	13.24	14.69	14.84	12.22	10.66	10.00	12.68
Marriages ..	No.	1[illegible]823	17,244	23,862	27,753	39,483	33,141	40,540
	Rate	6.94	7.60	7.47	7.32	8.79	6.59	7.80
Agriculture—								
Wheat ..	Area, acs.	1,279,778	3,002,0[illegible]	3,335,528	5,115,965	7,427,834	7,990,165	6,419,299
	Yld., bshl.	11,917,741	21,443,8[illegible]2	25,675,265	38,561,619	71,636,347	75,638,282	45,975,805
	Av. ,,	9.31	7.14	7.70	7.54	9.64	9.47	7.16
Oats ..	Area, acs.	225,492	194,816	246,129	461,430	616,857	768,152	1,068,520
	Yld., bshl.	4,251,630	4,795,897	5,726,256	9,789,854	9,561,771	10,441,080	12,559,366
	Av. ,,	18.85	24.62	23.27	21.22	15.50	13.59	11.75
Barley ..	Area, acs.	48,164	75,864	68,068	74,511	116,466	254,869	267,309
	Yld., bshl.	726,158	1,353,380	1,178,560	1,519,819	2,056,836	4,763,721	4,287,927
	Av. ,,	15.08	17.84	17.31	20.40	17.66	18.69	16.04
Maize ..	Area, acs.	142,078	165,777	284,428	294,849	340,065	286,812	265,469
	Yld., bshl.	4,576,635	5,72[illegible],266	9,261,922	7,034,786	8,939,855	6,912,158	6,764,005
	Av. ,,	32.21	[illegible].54	32.56	23.86	26.29	24.10	25.48
Hay ..	Area, acs.	303,274	768,388	942,166	1,688,402	2,516,288	2,692,904	3,127,324
	Yld., tons	375,671	767,194	1,067,255	2,024,608	2,867,973	2,893,602	2,989,138
	Av. ,,	1.24	1.00	1.13	1.20	1.14	1.07	0.96
Potatoes(a) ..	Area, acs.	67,911	76,265	112,884	109,685	130,463	111,160	113,907
	Yld., tons	212,896	243,216	380,477	322,524	301,489	260,416	294,227
	Av. ,,	3.13	3.19	3.37	2.94	2.31	2.84	2.58
Sugar Cane(d)	Area, acs.	11,576	19,708	45,444	86,950	101,010	116,138	159,037
	Yld., tons	176,632	349,627	737,573	1,367,802	1,682,250	1,780,063	1,350,081
	Av. ,,	15.25	17.74	16.23	15.73	16.65	15.33	15.05
Vineyards ..	Area, acs.	16,253	14,570	48,882	63,677	60,602	70,058	73,326
	Wine, gal.	2,104,000	1,488,000	3,535,000	5,816,087	4,975,147	8,692,887	7,640,404
Total value all agricultural production	£	8,941,000	15,519,000	16,480,000	23,835,000	38,774,000	58,080,000	72,234,000
Pastoral, dairying, etc.—								
Live Stock	Sheep No.	40,072,955	65,092,719	106,421,068	72,040,211	93,003,521	87,086,236	75,554,082
	Cattle ,,	4,277,228	8,010,991	11,112,112	8,491,428	11,828,954	12,738,852	12,711,067
	Horses ,,	701,530	1,068,029	1,584,737	1,620,420	2,279,027	2,528,248	2,421,201
	Pigs ,,	586,017	703,186	845,888	931,309	1,110,721	918,902	605,968
Wool prod., lb. greasy		179,000,000	332,759,000	631,587,000	543,131,661	726,408,625e	657,911,710e	663,249,164
Butter production lbs.		(c)	(c)	47,433,564	101,671,066	211,573,745	181,802,675	165,646,791
Cheese ,,		(c)	(c)	19,146,929	11,575,692	15,886,712	23,790,240	26,196,272
Bacon and ham ,,		(c)	(c)	(c)	34,020,629	53,264,652	66,171,428	57,747,092
Total estimated value of pastoral and dairying production ..	£	20,738,000	29,538,000	30,256,000	36,890,000	69,832,000	132,036,000	147,892,000
Mineral production—								
Gold ..	£	7,916,627	5,194,390	5,281,309	14,017,508	10,551,624	5,408,157	5,454,806
Silver and lead	£	36,528	45,622	3,736,352	2,367,687	3,022,177	6,104,977	1,922,050
Copper ..	£	830,242	714,003	367,373	2,215,431	2,564,278	4,464,787	1,891,675
Tin.. ..	£	24,020	1,145,889	560,502	448,234	1,209,973	1,482,294	1,060,435
Zinc ..	£	369	200	2,979	4,067	1,415,169	295,413	260,505
Coal ..	£	330,759	637,865	1,914,026	2,602,770	3,929,678	6,123,747	6,761,129
Total value all mineral production ..	£	9,190,330	7,820,290	12,108,759	21,022,665	23,494,324	26,155,649	19,725,482
Forestry production—								
Quantity of local timber sawn or hewn	1,000 sup. ft.	(c)	(c)	(c)	462,131	619,140	491,620	593,109
Manufactories—								
No. of factories ..		(b)	(b)	(b)	(b)	14,455	15,421	15,58[illegible]
Hands employed	No.					311,710	328,049	340,47[illegible]
Wages paid ..	£					27,528,703	38,379,268	42,506,0[illegible]
Total value of output	£					133,022,090	225,753,611	249,0[illegible]
Value added in process of manufacture	£					54,017,714	79,571,745	86,574,11[illegible]

(a) Partly estimated 1871 and 1881. (b) Owing to variation in classification and lack of information effective comparison is impossible. (c) Information not available. (d) Area of productive cane. (e) Season ended 30th June, year following.

STATISTICAL SUMMARY FOR THE COMMONWEALTH—*continued.*

Heading.	Years.						
	1871.	1881.	1891.	1901.	1911.	1918.	1919.
Shipping—							
Oversea vessels ent. & cleared No.	2,748	3,284	3,778	4,028	4,174	2,614	2,981
Oversea vessels ent. & cleared ton.	1,312,642	2,549,364	4,726,307	6,541,991	9,984,801	6,180,436	8,086,507
Commerce—							
Imports oversea £	17,017,000	29,067,000	37,711,000	42,434,000	66,967,488	102,335,159	98,974,292
,, per head £	10/3/3	12/16/2	11/16/0	11/3/11	14/18/2	20/2/9	18/13/2
Exports oversea £	21,725,000	27,528,000	36,043,000	49,696,000	79,482,258	113,963,976	149,823,509
,, per head £	12/19/6	12/2/8	11/5/6	13/2/2	17/13/10	22/8/7	28/4/11
Total oversea trade £	38,742,000	56,595,000	73,754,000	92,130,000	146,449,746	216,299,135	248,797,801
,, per head £	23/2/9	24/18/10	23/1/6	24/6/1	32/12/0	42/11/4	46/18/1
Customs and excise duties .. £	..	4,809,326	7,440,869	8,656,530	13,515,005	17,365,826	21,514,948
,, ,, per head, £	..	2/2/5	2/6/7	2/5/8	2/19/2	3/8/4	4/1/2
Principal Oversea Exports(a)—							
Wool lbs. (greasy)	176,635,800	328,369,200	619,259,800	518,018,100	720,364,900	676,305,700	7,844,357
Wool £	9,459,629	13,173,026	19,940,029	15,237,454	26,071,193	42,766,156	50,543,803
Wheat centals	479,954	3,218,792	5,876,875	12,156,035	33,088,704	26,738,158	49,482,395
Wheat £	193,732	1,189,762	1,938,864	[illegible]774,643	9,641,608	11,334,655	22,568,633
Flour tons	12,988	49,549	33,363	96,814	175,891	483,395	517,794
Flour £	170,415	519,635	328,423	589,604	1,891,529	5,818,824	8,906,973
Butter lbs.	1,812,700	1,298,800	4,239,500	34,607,400	101,722,100	41,114,800	390,063
Butter £	45,813	39,383	206,868	1,451,168	4,637,362	3,193,086	3,301,695
Skins and hides £	100,123	316,878	873,695	1,250,938	3,227,236	4,401,016	10,616,555
Tallow .. £	914,278	644,149	571,069	677,745	1,935,836	2,170,903	2,845,095
Meats .. £	566,780	362,965	460,894	2,611,244	4,303,159	9,163,003	12,630,599
Timber (undressed) £	42,586	118,117	38,448	731,301	1,023,960	227,230	467,612
Gold .. £	7,184,833	6,445,365	5,703,532	14,315,741	12,045,766	7,168,161	5,548,081
Silver and lead £	37,891	57,954	1,932,278	2,250,253	3,212,584	4,830,867	3,742,989
Copper .. £	598,538	676,515	417,687	1,619,145	2,345,961	2,262,627	2,768,481
Coal .. £	134,355	361,081	645,972	986,957	900,622	387,422	832,807
Govt. Railways—							
Lgth. of line open. mls.	970	3,832	9,541	12,577	16,078	22,180	22,647
Capital cost £	19,269,786	42,741,350	90,764,090	123,587,000	152,194,603	220,361,722	224,921,708
Gross revenue £	1,102,650	3,910,122	8,654,085	11,038,000	17,847,837	24,323,218	25,306,781
Working expenses £	608,332	2,141,735	5,630,182	7,149,000	10,945,727	17,665,661	19,003,693
Per cent. of work'g expenses on earnings %	55.17	54.77	65.06	64.76	61.33	72.63	75.09
Postal—							
Letters and postcards dealt with No.	24,382,000	67,640,000	157,297,000	220,853,000	453,063,000	553,709,000	583,459,000
,, ,, per head ,,	14.54	29.61	49.07	58.26	100.90	110.08	111.20
Newspapers dealt with No.	3,336,000	38,063,000	85,280,000	102,727,000	141,638,000	136,670,000	131,085,000
,, ,, per head ,,	7.95	16.66	26.61	27.10	31.54	27.17	24.98
Cheque-paying Banks—							
Note circulation £	2,456,487	3,978,711	4,417,269	3,406,175	876,428b	224,739b	214,577b
Coin & bullion held £	6,168,869	9,108,243	16,712,923	19,737,572	30,024,225	22,032,489	21,897,489
Advances .. £	26,039,573	57,732,824	129,741,363	89,167,499	116,769,133	192,070,161	185,129,356
Deposits .. £	21,856,959	53,849,455	98,345,338	90,965,530	147,103,081	244,482,241	247,398,081
Savings Banks—							
Number of depositors	100,713	250,070	614,741	964,553	1,600,112	2,830,593	3,032,865
Total deposits £	3,193,285	7,854,480	15,536,592	30,882,645	59,393,882	116,786,641	129,643,467
Aver. per depositor £	31/14/2	31/8/2	25/5/6	32/0/4	37/2/4	41/5/2	42/14/11
,, ,, head of population £	1/18/9	3/10/5	4/18/7	8/3/0	13/3/5	23/4/5	24/14/2
State Schools—							
Number of schools ..	2,502	4,494	6,231	7,012	8,060	9,028	9,107
Teachers .. No.	4,641	9,028	12,564	14,500	16,971	24,853	24,896
Enrolment .. ,,	236,710	432,320	561,153	638,478	638,850	779,697	782,317
Aver. attendance ,,	137,767	255,143	350,773	450,246	463,799	512,174	606,069

(a) Australian produce, except gold, which includes re-exports. (b) Decrease due to prohibition of re-issue.

CHRONOLOGICAL TABLE.

CHRONOLOGICAL TABLE OF CHIEF EVENTS SINCE THE ESTABLISHMENT OF SETTLEMENT IN AUSTRALIA.

NOTE.—The Government was centralised in Sydney, New South Wales, up to 1825, when Tasmania (Van Diemen's Land) was made a separate colony. In the Table, the names now borne by the States serve to indicate the localities.

Year.

1788 N.S.W.—*Arrival of "First Fleet" at Botany Bay.* Land in vicinity being found unsuitable for settlement, the expedition moved to Sydney Cove (now Port Jackson). Formal possession of Port Jackson taken by Captain Phillip on 26th January. Formal proclamation of colony on 7th February. Population, 1,024. Branch settlement established at Norfolk Island. French navigator Lapérouse visited Botany Bay. *First cultivation of wheat and barley.* First grape vines planted.

1789 N.S.W.—First wheat harvest at Parramatta, near Sydney. Discovery of Hawkesbury River. Outbreak of small-pox amongst aborigines.

1790 N.S.W.—"Second Fleet" reached Port Jackson. Landing of the New South Wales Corps. Severe suffering through lack of provisions. First circumnavigation of Australia by Lieut. Ball.

1791 N.S.W.—*First Exploration Map of Australia published. Arrival of "Third Fleet."* Territorial seal brought by Governor King.

1792 N.S.W.—Visit of *Philadelphia*, first foreign trading vessel. Population, 4,203.

1793 N.S.W.—First free immigrants arrived in the *Bellona*. First Australian church opened at Sydney. Tas.—D'Entrecasteaux discovered the Derwent River.

1794 N.S.W.—Establishment of settlement at Hawkesbury River.

1795 N.S.W.—Erection of the first printing press at Sydney. Descendants of strayed cattle discovered at Cowpastures, Nepean River.

1796 N.S.W.—First Australian theatre opened at Sydney. Coal discovered by fishermen at Newcastle.

1797 N.S.W.—Introduction of merino sheep from Cape of Good Hope.

1798 Tas.—Tasmania proved an island by voyage of Bass and Flinders.

1800 N.S.W.—*First export of coal.* First Custom House in Australia established at Sydney. Flinders' charts published. First issue of copper coin. Population, 5,995.

1801 N.S.W.—First colonial manufacture of blankets and linen.

1802 Vic.—Discovery of Port Phillip by Lieut. Murray. S.A.—Discovery of Spencer's and St. Vincent Gulfs by Flinders. Q'land.—Discovery of Port Curtis and Port Bowen by Flinders.

1803 N.S.W.—*First Australian wool taken to England by Capt. Macarthur.* Issue of "The Sydney Gazette," first Australian newspaper. Vic.—Attempted colonisation of Port Phillip by Collins. Discovery of Yarra by Grimes. Tas.—First settlement formed at Risdon by Lieut. Bowen.

1804 N.S.W.—Insurrection of convicts at Castle Hill. Vic.—Abandonment of settlement at Port Phillip. Tas.—Foundation of settlement at Hobart by Collins, and at Yorktown by Colonel Paterson.

1805 N.S.W.—*First extensive sheep farm established at Camden by Capt. Macarthur.* Portion of convicts from Norfolk Island transferred to Tasmania.

1806 N.S.W.—Shortage of provisions. Floods. Tas.—Settlement at Launceston.

1807 N.S.W.—Final shipment of convicts from Norfolk Island. First shipment of merchantable wool (245 lbs.) to England.

1808 N.S.W.—*Deposition of Governor Bligh.*

1810 N.S.W.—First post-office established at Sydney. First race meeting in Australia *at Hyde Park, Sydney. Population, 11,590. Tas.—First Tasmanian newspaper printed.*

1813 N.S.W.—Passage across Blue Mountains discovered by Wentworth, Lawson, and Blaxland. Macquarie River discovered by Evans.

Year.

1814 N.S.W.—Australia, previously known as "New Holland," received present name on recommendation of Flinders. Creation of Civil Courts.

1815 N.S.W.—Town of Bathurst founded by Governor Macquarie. First steam engine in Australia erected at Sydney. Lachlan River discovered by Evans. Tas.—Arrival of first immigrant ship with free settlers. First export of wheat to Sydney. Port Davey and Macquarie Harbour discovered by Capt. Kelly.

1816 N.S.W.—Botanic Garden formed at Sydney.

1817 N.S.W.—Oxley's first exploration inland. Discovery of Lakes George and Bathurst and the Goulburn Plains by Meehan and Hume. First bank in Australia opened at Sydney. Tas.—Great prosperity in wool and whaling industries.

1818 N.S.W.—Cessation of free immigration. Liverpool Plains, and the Peel, Hastings, and Manning Rivers discovered by Oxley, and Port Essington by Captain King.

1819 N.S.W.—First Australian Savings Bank at Sydney opened.

1820 N.S.W.—Foundation of Campbelltown. Clyde River discovered by Lieut. Johnson. Tas.—First importation of pure merino sheep.

1821 N.S.W.—Foundation of Philosophical (now Royal) Society. Population, 35,610. Tas.—Establishment of penal settlement at Macquarie Harbour. First Circuit Court held at Hobart.

1822 N.S.W.—Formation of Agricultural Society of N.S.W.

1823 N.S.W.—First Australian Constitution. Discovery of gold at Fish River by Assistant-Surveyor McBrien. Arrival in Sydney of Dr. John Dunmore Lang. Qld.—Brisbane River discovered by Oxley.

1824 N.S.W.—Became a Crown Colony. Executive Council formed. Establishment of Supreme Court at Sydney, and introduction of trial by jury. First Australian Enactment (Currency Bill) passed by the Parliament at Sydney. Proclamation of freedom of the press. First land regulations. First manufacture of sugar. Vic.—Hume and Hovell, journeying overland from Sydney, arrived at Corio Bay. Qld.—Penal settlement founded at Moreton Bay (Brisbane). Fort Dundas Settlement formed at Melville Island, N. Terr.

1825 Tas.—Proclamation of Independence of Van Diemen's Land (Tasmania) and appointment of a nominated Legislative Council for the new colony.

1826 N.S.W.—Illawarra founded by Captain Bishop. Vic.—Settlement at Corinella, Western Port, formed by Captain Wright. W.A.—Military Settlement founded at King George's Sound, Albany, by Major Lockyer.

1827 N.S.W.—Colony became self-supporting. Feverish speculation in land and stock. Qld.—Darling Downs and the Condamine River discovered by Allan Cunningham. Fort Wellington established at Raffles Bay, N. Terr. Tas.—Copper ore discovered at Macquarie Harbour.

1828 N.S.W.—Second constitution. First Census. Sturt's expedition down Darling River. Cotton first grown in Sydney Botanical Gardens. Gas first used at Sydney. Richmond and Clarence Rivers discovered by Captain Rous. Vic.—Abandonment of settlement at Western Port. Qld.—Cunningham discovered a route from Brisbane to the Darling Downs, and explored Brisbane River to its source. Tas.—First land sales.

1829 N.S.W.—*Sturt's expedition down Murrumbidgee River. New South Wales Act proclaimed. All English law, so far as circumstances of the Colony allowed, came into force.* W.A.—Foundation of settlement at Swan River, under command of Lieut.-Governor Stirling. Perth also founded.

1830 N.S.W.—Insurrection of convicts at Bathurst. Sturt, voyaging down Murrumbidgee and Murray Rivers, arrived at Lake Alexandrina. Qld.—Murder of Captain Logan by convicts at Brisbane. Tas.—Trouble with natives. Black line organised to force aborigines into Tasman's Peninsula, but failed. Between 1830 and 1835, however, George Robinson, by friendly suasion, succeeded in gathering the small remnant of aborigines (203) into settlement on Flinders Island.

1831 N.S.W.—Crown lands first disposed of by public competition. Mitchell's explorations north of Liverpool Plains. Arrival at Sydney of first steamer, *Sophia Jane*, from England. S.S. *Surprise*, first steamship built in Australia, launched at Sydney. First coal shipped from Australian Agricultural Company's workings at Newcastle, N.S.W. First assisted immigration to N.S.W. S.A.—Adelaide district discovered by Captain Barker. Murder of Barker by aborigines at Lake Alexandrina. Wakefield's first colonisation committee. W.A.—Appointment of Executive and Legislative Council. First newspaper—"Fremantle Observer." Lord Ripon's land regulations in N.S.W., W.A., and Tas.

Year.	
1832	N.S.W.—Savings Bank of N.S.W. established.
1833	N.S.W.—First School of Arts established at Sydney.
1834	N.S.W.—First settlement at Twofold Bay. Vic.—Settlement formed at Portland Bay by Henty Bros. Qld.—Leichhardt reached Gulf of Carpentaria. S.A.—Formation of the South Australian Association. Imperial Act Colonisation of S.A. W.A.—Severe reprisals against natives at Pinjarrah.
1835	N.S.W.—Establishment of depot at Fort Bourke on the Darling River, by Mitchell. Vic.—John Batman arrived at Port Phillip; made treaty with the natives for 600,000 acres of land; claim afterwards disallowed by Imperial Government. John Pascoe Fawkner founded Melbourne.
1836	N.S.W.—Mitchell's overland journey from Sydney to Cape Northumberland, Vic., "Squatting" formally recognised. Vic.—Proclamation of Port Phillip district as open for settlement. Captain Lonsdale first Resident Magistrate. S.A.—Settlement founded at Adelaide under Governor Hindmarsh.
1837	N.S.W.—Appointment in London of Select Committee on Transportation. Vic.—Melbourne planned and named by Governor Bourke. First Victorian post-office established in Melbourne. *First sale of Crown lands in Melbourne.* First overlanders from Sydney arrived at Port Phillip. S.A.—Adelaide planned by Captain Light. First newspaper published, and first sale of Crown lands.
1838	N.S.W.—Discontinuance of assignment of convicts. Drought and failure of crops. Frenzied speculation. Vic.—First Victorian paper published at Melbourne. Qld.—Settlement of German missionaries at Brisbane. S.A.—"Overlanding" of cattle from Sydney to Adelaide along the Murray route by Hawden and Bonney. Settlement at Port Essington, Northern Territory, formed by Captain Bremer.
1839	N.S.W.—Gold found at Vale of Clwydd by Count Strzelecki. Vic.—Appointment of Mr. C. J. La Trobe as Superintendent Port Phillip district. S.A.—*Lake Torrens discovered by Eyre. Port Darwin discovered by Captain Stokes.* W.A.—Murchison River discovered by Captain Grey.
1840	N.S.W.—Abolition of transportation to New South Wales. Land regulations—*proceeds of sales to be applied to payment for public works and expenditure* on immigration. Foundation of viticultural industry. Monetary crisis. Vic.—Determination of northern boundary. Colonists desire separation. Qld.—*Penal settlement broken up and Moreton Bay district thrown open.* S.A.—Incorporation of Adelaide. Eyre began his overland journey from Adelaide to King George's Sound. Tas.—Visit of the *Erebus* and *Terror* to Hobart. Sir J. D. Hooker investigated the island flora.
1841	N.S.W.—Gold found near Hartley by Rev. W. B. Clarke. Separation of New Zealand. W.A.—Completion of Eyre's overland journey from Adelaide to King George's Sound. Tas.—Renewal of transportation.
1842	N.S.W.—Incorporation of Sydney. Vic.—Incorporation of Melbourne. S.A.—Discovery of copper at Kapunda.
1843	N.S.W.—*First Representative Constitution. First manufacture of tweed.* Financial crisis. Qld.—Moreton Bay granted legislative representation. Tas.—Agitation against further introduction of convicts.
1844	S.A.—*Sturt's last expedition inland.* Qld.—*Leichhardt's expedition from Condamine River to Port Essington.*
1845	N.S.W.—Mitchell's explorations on the Barcoo. Qld.—Explorations by Mitchell and Kennedy. S.A.—*Discovery of the Burra copper deposits. Sturt discovered Cooper's Creek.* W.A.—First steam vessel (H.M.S. *Driver*) visited Fremantle.
1846	N.S.W.—*Mr. Gladstone proposed to revive transportation.* Initiation of meat preserving. Qld.—Foundation of settlement at Port Curtis. S.A.—Proclamation of North Australia. W.A.—Foundation of New Norcia Mission.
1847	N.S.W.—*Crown Land Leases Act. Iron smelting* commenced near Berrima. Overland mail established between Sydney and Adelaide. Vic.—Melbourne created a City. Qld.—Explorations by Leichhardt, Burnett, and Kennedy. W.A.—Issue of regulations for leasing Crown lands. First export of guano.
1848	N.S.W.—Attempts to revive transportation. Influx of Chinese. Qld.—Leichhardt's last journey. Kennedy speared by the blacks at York Peninsula. Chinese brought in as shepherds. W.A.—Copper and lead discovered in the Champion Bay district by the Messrs. Gregory.

Year.

1849 N.S.W.—Indignation of colonists at arrival of convict ship *Hashemy*. Exodus of population to goldfields of California. Vic.—*Randolph* prevented from landing convicts. Qld.—Assignation of convicts per *Hashemy* to squatters on Darling Downs. W.A.—Commencement of transportation to Western Australia.

1850 N.S.W.—Final abolition of transportation. First sod of first Australian railway turned at Sydney. University incorporated. Vic.—Gold discovered at Clunes by Hon. W. Campbell. Representative government granted. S.A.—Representative government granted. W.A.—Pearl oysters found by Lieut. Helpman at Saturday Island Shoal. Tas.—Representative government granted. Discovery of coal at the Don and Mersey.

1851 N.S.W.—Payable gold discovered by Hargraves at Lewis Ponds and Summerhill Creeks. Telegraph first used. Vic.—Separation of Port Phillip—erected into independent colony under the name of Victoria. Discovery of gold in various localities. "Black Thursday," 6th Feb., a day of intense heat, when several persons died and a vast amount of damage to property was occasioned by fires. Qld.—Agitation for separation from New South Wales. S.A.—Financial depression. Tas.—Serious exodus of population to goldfields on mainland. W.A.—Proclamation of Legislative Council Act.

1852 N.S.W.—Destruction of Gundagai by flood—77 lives lost. Arrival of the *Chusan*, first P. and O. mail steamer from England. S.A.—First steamer ascends the Murray River to the junction with the Darling. Tas.—Meeting of first elective Council protests against transportation. Payable gold discovered at The Nook, near Fingal, and at Nine Mile Springs.

1853 Vic.—University established. Tas.—Abolition of transportation.

1854 N.S.W.—Russian war-scare and volunteer movement. Vic.—Opening of first Victorian railway—Flinders Street to Port Melbourne. Riots on Ballarat goldfields. Storming of the Eureka Stockade, 3rd Dec.

1855 N.S.W.—Opening of railway—Sydney to Parramatta. Introduction of responsible Government. Mint opened. Vic.—Proclamation of Constitution. Qld.—Gregory's expedition in search of Leichhardt. Tas.—Responsible government introduced.

1856 N.S.W.—First elective Parliament. Pitcairn Islanders placed on Norfolk Island, which was placed under jurisdiction of Governor of New South Wales. Vic.—First Parliament under responsible government. S.A.—Responsible government introduced. Tas.—First Parliament under responsible government. W.A.—A. C. Gregory's expedition in search of Leichhardt.

1857 N.S.W.—Heavy floods. Wreck of the *Dunbar* (119 lives lost), and *Catherine Adamson* (21 lives lost), at Sydney Heads. Select Committee on Federation. Vic.—Manhood suffrage established. S.A.—First Parliament under responsible government. Exploration by Babbage and Warburton. Passage of Torrens' Real Property Act.

1858 N.S.W.—Establishment of manhood suffrage and vote by ballot. Telegraphic communication between Sydney, Melbourne, and Adelaide. S.A.—Stuart's explorations. Qld.—The Canoona gold rush.

1859 Qld.—Proclamation of Queensland as separate colony. Tas.—First submarine cable, *via* Circular Head and King Island, to Cape Otway.

1860 N.S.W.—Disastrous floods on the Shoalhaven and at Araluen. Vic.—Burke and Wills left Melbourne on their journey across Continent. Qld.—First Parliament under responsible government. S.A.—Copper discoveries at Wallaroo and Moonta.

1861 N.S.W.—Anti-Chinese riots at Lambing Flat and Burrangong goldfields. Opening of first tramway in Sydney. Robertson's Land Acts. Messrs. Parkes and Dalley proceeded to London as emigration lecturers. Regulation of Chinese immigration. Vic.—Conference of Statisticians, Melbourne. Burke and Wills perished at Cooper's Creek, near Innamincka, S.A. W.A.—Exploration of F. Gregory in the North-west.

1862 N.S.W.—Raid by bushrangers on the Lachlan gold escort (£14,000 taken). Abolition of State aid to religion. Real Property Act. Vic.—C. Gavan Duffy's Land Act. Qld.—McKinlay's explorations. Heavy floods on Fitzroy River. S.A.—Stuart crossed the Continent from south to north. W.A.—Severe floods—damage to property, £30,000. First export of pearl-shell.

1863 N.S.W.—Bathurst and Canowindra "held up" by bushranger Gilbert. Vic.—Intercolonial conference at Melbourne. S.A.—Northern Territory taken over. W.A.—Initiation of settlement in the North-west district. Establishment of Post Office (now Government) Savings Bank.

Year.

1864 N.S.W.—Frequent outrages by bushrangers. Qld.—First railway begun and opened. First sugar made from Queensland cane. W.A.—Messrs. Panton, Harding, and Goldwyer murdered by natives. Tas.—First successful shipment of English salmon ova.

1865 N.S.W.—Destruction by fire of St. Mary's Cathedral, Sydney.

1866 N.S.W.—Passage of Public Schools Act of (Sir) Henry Parkes. Qld.—Financial crisis. S.A.—Introduction of camels for exploration, etc.

1867 Vic.—Imposition of protective tariff. Qld.—Discovery of gold at Gympie.

1868 N.S.W.—Attempted assassination of the Duke of Edinburgh at Clontarf, near Sydney. Qld.—Passage of Act to regulate island labour traffic. W.A.—Arrival of the *Hougomont*, last convict ship. Tas.—First sod of first railway (Launceston and Western) turned by Duke of Edinburgh.

1869 N.S.W.—Establishment of Eskbank Iron Company. Vic.—Reduction of property qualification for members and electors of Legislative Council. W.A.—First telegraph line opened from Perth to Fremantle. Tas.—Second cable opened.

1870 N.S.W.—Intercolonial Exhibition opened at Sydney. Imperial troops withdrawn. Vic.—Intercolonial Congress at Melbourne. S.A.—Commencement of transcontinental telegraph.

1871 N.S.W.—Permanent military force raised. Vic.—Increase of protective duties. W.A.—Passage of Elementary Education Act. Forrest's explorations. Tas.—Discovery of tin at Mount Bischoff. Launceston-Western railway opened for traffic.

1872 N.S.W.—International Exhibition at Sydney. Death of W. C. Wentworth. Vic.—Mint opened. Qld.—Discovery of tin at Stanthorpe, copper at Mt. Perry, coal at Wide Bay, gold at the Palmer. S.A.—Cable from Java to Port Darwin. Completion of transcontinental telegraph line. W.A.—Cyclonic storms—destruction of town of Roebourne. Tas.—Completion of direct telegraphic communication with England.

1873 N.S.W.—Intercolonial Conference at Sydney. First volunteer encampment. Inauguration of mail service with San Francisco. W.A.—Warburton crossed from transcontinental telegraph line to head of De Grey River.

1874 N.S.W.—Triennial Parliaments Act passed. Intercolonial Conference. Qld.—Dalrymple's discoveries on north-eastern seaboard. S.A.—Adelaide University founded. W.A.—Explorations by E. Giles. John and Alexander Forrest arrived at Overland Telegraph from Murchison.

1875 Qld.—Transfer of Port Albany Settlement to Thursday Island. S.A.—Wreck of the *Gothenburg*—Judge Wearing and other well-known Adelaide citizens drowned. Education Act passed. Explorations by Giles, Gosse, and Warburton. Tas.—Conference of Statisticians, Hobart.

1876 N.S.W.—Completion of cable—Sydney (La Perouse) to Wellington (Wakapuaka). Vic.—Members of Legislative Assembly increased to 86. W.A.—Violent gale at Exmouth Gulf, number of pearling vessels wrecked, 69 lives lost. Giles crosses colony from east to west. Tas.—Death of Truganini, last representative of Tasmanian aborigines.

1877 Vic.—Deadlock on question of payment to members. W.A.—Opening of telegraphic communications with South Australia. Tas.—Discovery of rich gold-bearing quartz reef at Beaconsfield.

1878 N.S.W.—Seamen's strike. Vic.—Visit to England of Victorian delegation re alteration of Victorian Constitution. "Black Wednesday"—wholesale dismissal of civil servants. Qld.—Restriction of Chinese immigration.

1879 N.S.W.—First artesian bore at Killara. International Exhibition at Garden Palace, Sydney. First steam tramway. First issue of silver coin from Mint. W.A.—Celebration of 50th anniversary of foundation of colony. A. Forrest's explorations in the Kimberley district, and discovery of the Fitzroy pastoral country.

1880 N.S.W.—Public Instruction Act passed. Sydney streets partially wood-paved. Vic.—Opening of first Victorian International Exhibition at Melbourne. Federal Conference, at Melbourne and Sydney.

1881 N.S.W.—Further restrictions on Chinese immigration. Vic.—Reduction of property qualification for members and electors of Legislative Council, number of members increased to 42. W.A.—Cyclone near Roebourne wrecked number of pearling vessels. On the Ashburton, 1,000 sheep destroyed by cyclone. First simultaneous Australian Census, population 2,250,194. Visit to Australia of T.R.H. Prince Albert Victor and Prince George of Wales.

Year.

1882 N.S.W.—Garden Palace destroyed by fire. W.A.—Nugget of gold found between Roebourne and Cossack.

1883 N.S.W.—Discovery of silver at Broken Hill. Completion of railway between New South Wales and Victoria. Qld.—Annexation of New Guinea—repudiated by Imperial authorities.
Federal Conference held at Sydney. Federal Council created.

1884 N.S.W.—Land legislation restricting sales by auction. Vic.—Appointment of First Public Service Board. W.A.—Stockdale's explorations.
Federation Bill passed in Victoria and rejected in New South Wales. British protectorate declared over New Guinea.

1885 N.S.W.—Military contingent sent to the Sudan. Opening of the Broken Hill Proprietary Silver Mines. Qld.—Agitation for division of the colony. W.A.—Gold found by prospectors on the Margaret and Ord Rivers in the Kimberley district. Tas.—Silver-lead discovered at Mount Zeehan.

1886 N.S.W.—Industrial depression. Wreck of the *Ly-ee-Moon*, *Corinjamite*, and *Helen Nicol*. S.A.—Celebration of jubilee of foundation of province. W.A.—Proclamation of Kimberley goldfields. Tas.—Discovery of gold and copper at Mount Lyell.
First session of Federal Council met at Hobart on the 28th January.

1887 N.S.W.—Disaster at Bulli coal mine (81 lives lost). Peat's Ferry (Hawkesbury River) railway accident. S.A.—International Exhibition at Adelaide. W.A.—Cyclone destroyed nearly the whole pearling fleet off the Ninety-Mile Beach—200 lives lost. Gold discovered at Southern Cross.
Australasian Conference in London. Australasian Naval Defence Force Act passed.

1888 N.S.W.—Destructive bush fires. Centennial celebrations. Restrictive legislation against Chinese, imposing poll-tax of £100. Vic.—Second Victorian International Exhibition held at Melbourne. Members of Legislative Council increased to 48, and of Assembly to 95. Qld.—Railway communication opened between Sydney and Brisbane. W.A.—Favenc's explorations.
Centenary of first settlement in Australia. Conference of Australian Ministers at Sydney to consider question of Chinese immigration. First meeting of the Australasian Association for the Advancement of Science held in Sydney. Imperial Defence Act passed.

1889 N.S.W.—Destructive floods, Hunter River. Qld.—Direct railway communication established between Brisbane and Adelaide. W.A.—Framing of new Constitution. Tas.—University founded.

1890 N.S.W.—Strike at Broken Hill. Maritime and shearers' strikes. Payment of members of Parliament. Destructive bush fires. Qld.—Wreck of the *Quetta*—146 lives lost. Floods and hurricanes. Industrial depression. W.A.—Responsible government granted.
Meeting at Melbourne of Australasian Federation Conference. Pre-censal Conference of Statisticians at Hobart.

1891 N.S.W.—Election to Legislative Assembly of 35 Labour members. Arrival of Australian Auxiliary Squadron. Collapse of several building societies. Cessation of assisted immigration. W.A.—Discovery of gold on the Murchison.
Federal Convention in Sydney, draft bill framed and adopted. Second simultaneous Australian census. Population, 3,174,392.

1892 N.S.W.—Broken Hill miners' strike. Run on Government Savings Bank. Women's College, Sydney University, opened. Vic.—Suspension of Railway Commissioners. W.A.—Discovery of gold by Messrs. Bayley and Ford at Coolgardie.

1893 N.S.W.—Departure by the *Royal Tar* of colonists for "New Australia." Electoral Act—"One man one vote." Financial crisis, chiefly affecting the eastern States. Qld.—Brisbane floods.

1894 N.S.W.—Shearers' strike. S.A.—Adult Suffrage Bill assented to. Industrial depression.

1895 N.S.W.—Crown Lands Act of 1895. Free-trade tariff. Land and income taxes introduced.
Conference of Premiers at Hobart *re* Federation.

1896 N.S.W.—People's Federal Convention at Bathurst. S.A.—Departure of Calvert expedition.

1897 S.A.—Floods and storms at Adelaide. Death of Sir Thomas Elder. Earthquake and hurricane in Northern Territory. Town of Palmerston destroyed.

1897–8 Sessions of Federal Convention at Adelaide, Sydney, and Melbourne.

Year.

1898 N.S.W.—First surplus of wheat for export.

Draft Federal Constitution Bill submitted to electors in Victoria, New South Wales, South Australia, and Tasmania. Requisite statutory number of votes not obtained in New South Wales.

1899 First contingent of Australian troops sent to South Africa. Conference of Premiers in Melbourne to consider amendments to Federal Constitution Bill. Referendum—Bill accepted by New South Wales, Victoria, Queensland, South Australia, and Tasmania.

1900 N.S.W.—Old-age pensions instituted. W.A.—Agitation for separation by goldfields.

Contingents of naval troops sent to China.

Commonwealth Constitution Act received Royal Assent, 9th July. Mr. (afterwards Sir) Edmund Barton formed first Federal Ministry.

1901 Vic.—Old-age Pensions instituted.

Proclamation of the Commonwealth at Sydney. First Federal Parliament opened at Melbourne by the Duke of Cornwall and York. Simultaneous Australasian Census—population of the Commonwealth, 3,773,801. Interstate freetrade established.

1902 N.S.W.—Disastrous explosion at Mount Kembla Colliery—95 lives lost. Women's franchise granted. Jubilee of Sydney University. S.A.—Reduction of number of members of both Houses of Parliament. W.A.—Opening of pumping station at Northam in connection with Goldfields water supply.

First Federal Tariff.

1903 Vic.—Railway Strike (Enginemen). W.A.—Coolgardie and Kalgoorlie water supply scheme completed.

Inauguration of the Federal High Court. Conference of Statisticians in Melbourne.

1904 N.S.W.—*Reduction of members of Legislative Assembly from 125 to 90.*

1905 N.S.W.—Re-introduction of assisted immigration.

1906 Wireless telegraphy installed between Queenscliff, Vic., and Devonport, Tas. Conference of Statisticians of Australian States and New Zealand. Papua taken over by Commonwealth.

1907 N.S.W.—Telephone, Sydney to Melbourne, opened.

Imperial Conference in London. Introduction of new tariff in Federal Parliament. Preference to United Kingdom. Allowance to Federal members of Parliament increased from £400 to £600.

1908 Vic.—Railway accident at Braybrook Junction (Sunshine)—44 killed, 412 injured; compensation paid, £126,000.

Yass-Canberra chosen as site of Federal Capital. Interstate Premiers' Conference at Melbourne.

1909 N.S.W.—Miners' strikes at Broken Hill and Newcastle. Qld.—University established. S.A.—*Clan Ranald* foundered in St. Vincent's Gulf—40 drowned. W.A.—Cyclone at Broome.

Imperial Defence Conference in London—Commonwealth ordered two destroyers and one first-class cruiser for fleet unit. Visit of Lord Kitchener to report and advise on Commonwealth military defence. Loss of the *Waratah* with 300 passengers and crew.

1910 Vic.—Railway accident at Richmond—9 killed, over 400 injured; compensation paid, £129,000. W.A.—Cyclone at Broome—several pearling vessels wrecked, three whites and many coloured fishermen drowned. Wreck of the *Pericles* off Cape Leeuwin.

Referendum on financial relations between the Commonwealth and the States. Proclamation taking over Yass-Canberra (in New South Wales) as site for Federal Capital. Penny postage. Visit of Scottish Agricultural Commission. Arrival of the *Yarra* and *Parramatta*, first vessels of Australian navy. Australian Notes Act passed and first Commonwealth notes issued. Admiral Sir R. Henderson visited Australia to advise on naval defence.

Year.

1911 First Federal Census—population of the Commonwealth, 4,455,005. Transfer of Northern Territory to Commonwealth. Federal referenda relating to Monopolies and Industrial Legislation—proposals rejected. Introduction of compulsory military training. Launch of Commonwealth destroyer *Warrego* at Sydney. Establishment of penny postage to all parts of British Empire. Western Australian University founded.

1912 Commonwealth Bank opened. First payments of Maternity Bonus. First sod turned at Port Augusta of Trans-Australian Railway (Port Augusta to Kalgoorlie). Administrators to Northern and Federal Territories appointed. Gift of £1,000,000 to charities by Mrs. Walter Hall, Sydney, N.S.W.

1913 Arrival of battle cruiser *Australia*, and cruisers *Melbourne* and *Sydney*. Foundation stone of Commonwealth Building in London laid by the King. Federal Capital named Canberra and foundation stone laid. Appointment of Inter-state Commission. Visit of Empire Trade Commission. Visit of Members of Empire Parliamentary Association.

1914 Visit of General Sir Ian Hamilton to report on military defence scheme. Double dissolution of Federal Parliament. Visit of British Association for the Advancement of Science.

European War. Australian Navy transferred to Imperial Navy. Captured vessels added to Australian fleet. Submarine AE1 lost at sea whilst on service in the vicinity of New Britain. German Pacific possessions seized by Australian expeditionary force (military and naval). Australian troops offered to, and accepted by Imperial Government. German Cruiser *Emden* destroyed at North Cocos Island by H.M.A.S. *Sydney*.

1915 Opening of Broken Hill Proprietary's Ironworks at Newcastle, N.S.W. Referendum for purpose of giving increased powers to the Commonwealth abandoned. Navy Department created. Formation of Australian Wheat Board. First War Loan, £13,389,000.

Australian troops landed at Dardanelles on 25th April. Loss of Submarine AE2 in operations at the Dardanelles. Census taken of Wealth and Income, and of Males in Australia between ages of 17 and 60. Australian troops withdrawn from Gallipoli on 19th December.

1916 Record wheat harvest (180,000,000 bushels). Special recruiting campaign instituted. Australian troops transferred to France. Acquisition of steamships by the Commonwealth. First Military Service Referendum—proposal rejected. Second War Loan, £21,656,000.

1917 National Ministry formed. Third War Loan, £23,588,000. General strike. Kalgoorlie-Port Augusta railway completed. Second Military Service Referendum. Fourth War Loan, £21,584,000. Fifth War Loan, £21,214,000.

1918 Population of Australia reaches 5,000,000. Australian troops in France formed into an Army Corps, commanded by Lieut.-Gen. Sir John Monash. Cessation of hostilities and surrender of Germany. Sixth War Loan, £42,952,000. Seventh War Loan, £44,084,000. Repatriation Department created. Australia House (Strand, London) opened by the King. Australian representative for United States appointed. Death of Sir G. H. Reid. Death of Lord Forrest of Bunbury.

1919 Visit to Europe of Rt. Hon. W. M. Hughes, P.C., K.C., Prime Minister, as representative at Peace Conference. Epidemic of influenza. Seamen's strike. Strike of Broken Hill miners. Aerial flight England to Australia by Capt. Sir Ross Smith and Lieut. Sir Keith Smith. Death of Hon. Alfred Deakin. Conference in London *re* Double Income Tax. Visit to Australia of General Sir W. Birdwood. Visit of Admiral Lord Jellicoe. First Peace Loan, £25,025,000.

1920 Visit to Australia of H.R.H. the Prince of Wales. Aerial flight England to Australia by Lieuts. Parer and McIntosh. Death of Rt. Hon. Sir Edmund Barton. Death of Rt. Hon. Sir Samuel Griffith. Imperial Statistical Conference in London. Increase of allowance to Federal Members from £600 to £1000. Second Peace Loan, £26,613,000. Introduction of new Tariff in Federal Parliament.

1921 Visit to Imperial Conference of Rt. Hon. W. M. Hughes, P.C., K.C., Prime Minister. Second Commonwealth Census—population of Commonwealth, 5,436,794. Germany's Indemnity fixed (Australia's share approximately £63,000,000). Visit of Senator Pearce (Minister for Defence) to Disarmament Conference at Washington. Mining Disaster at Mt. Mulligan, Queensland—76 lives lost. Mandate given to Australia over certain captured German Territory in the Pacific. Peace Loan, £10,000,000. Total War and Peace Loans raised to 15th June, 1921, £240,085,000.

OFFICIAL YEAR BOOK

OF THE

COMMONWEALTH OF AUSTRALIA, 1920,

AND EARLIER YEARS.

SECTION I.

STATISTICAL ORGANISATION AND SOURCES OF INFORMATION.

§ 1. Introduction.

1. **Development of Australian Statistics.**—In the first issue of the Commonwealth Official Year Book (No. 1, 1901–1907), an account was given of the origin and development of Australian Statistics; *vide* pp. 1 to 16 therein. Owing to considerations of space, however, this matter was considerably curtailed in succeeding Year Books, and appears in No. 4 on pp. 1 to 4. In the following issues, a still further curtailment has been made in order to make room for new matter.

Briefly, it may be stated that to the "Blue Books" compiled in Australia for the Imperial authorities, there succeeded, under Responsible Government, the statistics which each of the departments prepared for itself. State statistical departments were organised later, principally as collecting agencies of official and general information.

Owing to absence of co-ordination in collection and compilation due to the organisation independently of the various States bureaux, there were difficulties in so combining State statistics as to get a satisfactory statistic for Australia as a whole, and various conferences of State Statisticians did not completely rectify the divergencies that had arisen.

(i) *Creation of the Commonwealth Bureau of Census and Statistics.* Constitutionally, matters relating to "Census and Statistics" belong to the Commonwealth, and in 1906, under the authority of the Census and Statistics Act of 1905, providing for the taking of the Census and the collecting of general statistics, the Commonwealth Bureau of Census and Statistics was created. A conference of statistical representatives of Australian States and New Zealand, under the presidency of the Commonwealth Statistician, met in November and December, 1906. For a more or less complete presentation of the affairs of the Commonwealth and of its constituent parts, various desiderata were recognised, and a series of resolutions adopted by the conference. Identity of categories, simultaneity and identity in methods of collection, and uniformity in compilation, were the main features desired. A résumé of the resolutions of this conference is given in Year Book No. 1, pp. 12–16. Mr. G. H. Knibbs, C.M.G., F.S.S. (now Honorary Fellow), etc., was appointed the first Commonwealth Statistician on the 18th June, 1906, and continued in that capacity until the 18th March, 1921, when he was appointed Director of the Institute of Science and Industry. At the request, however, of the Hon. A. Poynton, Minister for Home and Territories, and with the approval of the Hon. W. Massy Greene, Minister for Trade and Customs, Mr. Knibbs has continued to exercise some supervision over the Bureau of Census and Statistics pending the appointment of his successor.

(ii) *Organisation of the Commonwealth Bureau of Census and Statistics.* In the organisation of the Bureau, while all classes of work may at any time be relegated to any officer, certain fields of activity are attended to mainly by the officers mentioned

hereunder, who, subject to the general direction of the Statistician, supervise the work of the different branches :—

JOHN STONHAM, M.A. (Sydney), Chief Compiler; general administration, and Assistant Editorship of Official Year Book.

CHARLES HENRY WICKENS, F.I.A. Supervisor of Census, Population, Transport and Communication, and Production Statistics.

EDWARD TANNOCH MCPHEE. Shipping and Trade Statistics.

GERALD LIGHTFOOT, M.A. (Cambridge), Barrister at Law. Industrial and Social Statistics.(a)

FREDERICK DALGLISH ROSSITER, M.A. (Melbourne), Defence; general control of Library, etc.

FREDERICK WILLIAM BARFORD, M.A. (Oxford), A.I.A. Finance.

HAROLD JAMES EXLEY. Vital Statistics.

(a) Since 1916, on loan to Commonwealth Institute of Science and Industry. The branch is now supervised by J. T. SUTCLIFFE and H. PETRIE.

2. **Sources of Information.**—Statistical information is furnished (i) by the State Statistical Bureaux, either as a result of direct demand, or through the police and special collectors; (ii) by Commonwealth and State Departments (see lists of publications in § 2 *infra*); (iii) in respect of returns of Trade, Customs and Excise, by the Trade and Customs Department; (iv) by scientific and technical experts, specially requisitioned to write on particular subjects; (v) by State Statisticians, as officers duly constituted under the Commonwealth Census and Statistics Act; and (vi) by information supplied compulsorily, on the Commonwealth Statistician's demand.

3. **Maintenance of Secrecy.**—Under no circumstances can information supplied to a statistical office be used against the individual supplying it. All statistical enquiries are strictly impersonal, and the affairs of individuals or individual businesses are never disclosed. No other Government Department can make use of the Statistical Departments in order to acquire detailed information otherwise unavailable.

4. **Accuracy Essential.**—The importance of accurate statistical information is emphasised. The making of untrue statements is heavily penalised.

§ 2. Statistical Publications of Australia.

1. ***Introductory.***—The official statistical publications of Australia may be divided bibliographically into two main divisions, viz. :—(1) Commonwealth publications dealing both individually and collectively with the several States of the Commonwealth, and (2) State publications dealing with individual States only. Besides these there are many other reports, etc., issued regularly, which though not wholly statistical, necessarily contain a considerable amount of statistical information. The more important of these published to September, 1921, are indicated below.

2. **Commonwealth Publications.**—Commonwealth publications may be grouped under two heads, viz. :—(i) Publications issued by the Commonwealth Statistician, and (ii) Parliamentary and Departmental Reports and Papers.

(i) *Publications issued by the Commonwealth Statistician.* The following is a list of the principal statistical publications issued from the Commonwealth Bureau of Census and Statistics since its inauguration up to September, 1921. The Demography, Finance, Production, and Transport and Communication Bulletins cover statistics from 1901. The Year Book contains figures from earlier years. A full list from 1906 to 1920 is given in Official Year Book No. 13, pp. 2 *et seq.*

Australian Life Tables, 1901–1910. *Australian Joint Life Tables*, 1901–1910.
Census (1911) Bulletins.

Census (1911) Results.—Vols. I., II., and III., with Appendix "Mathematical Theory of Population."

Finance—Bulletins, 1907 to 1915–16 annually; 1916–17, 1917–18 and 1918–19 (one vol.); future issues biennially.

Labour and Industrial Statistics—Memoranda and Reports, various, to 1913. *Annual Reports*—Prices, Purchasing Power of Money, Wages, Trade Unions, Unemployment, and General Industrial Conditions, 1913 to 1920.

Local Government in Australia—July, 1919.

Official Year Book of the Commonwealth of Australia—Annually, 1907 to present issue (1921).

Pocket Compendium of Australian Statistics (formerly *Statistical Digest*), 1913, 1914, 1916, 1918, 1919, 1920, and 1921.

Population and Vital Statistics Bulletins—Reports, various. Commonwealth Demography, 1911 to 1920.

Production—Bulletins, annually, 1906 to 1919–20.

Professional Papers—Various. A full list will be found in Official Year Book No. 13, p. 3.

Quarterly Summary of Australian Statistics—first issue, No. 70, December, 1917, replacing *Monthly Summary of Australian Statistics* (Bulletins 1 to 69), and incorporating data from earlier publications relating to Labour, Shipping, Trade, Vital Statistics, Oversea Migration, etc.

Social Insurance—Report to the Hon. the Minister of Trade and Customs, 1910.

Social Statistics—Bulletins, 1907 to 1918 annually; future issues biennially.

Superannuation for the Commonwealth Public Service—Report to the Hon. the Minister of Home Affairs, 1910.

Trade and Customs—Trade, and Customs and Excise Revenue, annually, 1906 to 1919–20.

Transport and Communication—Bulletins, 1906 to 1916 annually; [illegible] and 1918 (one vol.); 1919; future issues biennially.

Wealth—The Private Wealth of Australia and its Gro[illegible], as ascertained by various methods, together with a Report of the W[illegible] in [illegible]

(ii) *Commonwealth Parliamentary and Departmental Reports* [illegible] The principal official reports and papers containing statistical matter issue[illegible]uguration of the Commonwealth, to 1920, are given in Official Year Book No. 1[illegible]. They relate chiefly to Administration, Arbitration, Audit, Banks, Bounties, B[illegible]ndertakings, Commerce, Commissions (Customs, Defence, Elections, Econo[illegible], Industries, Trade), Debts, Defence (Army and Navy), Elections and Franchise, Federal Capital, Fisheries, Forestry, High Commissioner, History, Immigration, Industries and Manufactures, Inter-State Commission, Labour and Unionism, Laws, Lighthouses, Medicine, Meteorology, Murray Waters, Naturalization, New Guinea, Norfolk Island, Northern Territory, Papua, Patents, Pensions, Posts, Prices, Public Service, Public Works, Railways, Science and Industry, Shipping, Social Insurance, Sugar, Tariff, Taxation, Telegraphs, Telephones, Trade and Customs, Trade Marks, Treasury, Wool, etc.

3. State Publications.—(i) The chief publications of each State are:—Publications by the various State Statisticians, the principal of which are set out below. Annual and other Reports of Departments, Officials, Boards, etc., as given in Official Year Book No. 13, pp. 7 *et seq.* Reports and Statements of Local Governing Bodies, also shewn in Official Year Book No. 13, pp. 7 *et seq.*

(ii) *Principal Publications by Government Statisticians of the Various States*:—

(*a*) New South Wales—Statistical Register (annual); Official Year Book of New South Wales (annual); Statesman's Year Book (annual); Vital Statistics (monthly and annual); Statistical Bulletin (monthly to December, 1919), thereafter quarterly.

(*b*) Victoria—Statistical Register (annual to 1916); Victorian Year Book (annual); Vital Statistics (annual and quarterly); Statistical Abstracts (quarterly to 1917).

(*c*) Queensland—Statistical Register (annual); Official Year Book, 1901; A.B.C. of Queensland Statistics (annual); Vital Statistics (annual and monthly).

(*d*) South Australia—Statistical Register (annual); Official Year Book, 1912 and 1913; Blue Book (annual); Statesman's Pocket Year Book (annual); Returns of Births and Deaths (monthly).

(*e*) Western Australia—Statistical Register (annual); Year Book, 1900–03, 1902–4, 1905 (part); Blue Book (annual); Statistical Abstracts (quarterly, previously issued monthly to July, 1917); Population and Vital Statistics (annual and quarterly); Statistical View of Progress (annual).

(*f*) Tasmania—Statistical Register (annual); Statesman's Pocket Year Book, annual, from 1915; Statistical Summaries (annual); Vital Statistics and Migration (annual and monthly).

§ 3. Bibliography of Recent Works on Australia.

1. **General.**—In Official Year Book No. 13, a list of the principal general works dealing with Australia and Australian affairs, published from 1901 to 1920, will be found. Of the publications of the first sixteen years of the Commonwealth the more important are now repeated, with a fuller list of works published within the last five years.

ALLIN, C. D., A History of the Tariff Relations of the Australian Colonies. Minneapolis, 1918.

ATKINSON, MEREDITH (ed.). Australia: Economic and Political Studies, by Various Writers. Melbourne, 1920.

AUSTRALIAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. Annual Reports of Proceedings.

BERNAYS, C. A. Queensland Politics during Sixty Years, 1859–1919. Brisbane, 1919.

BRADY, E. J. Australia Unlimited. Melbourne, 1918.

BRITISH IMMIGRATION LEAGUE OF AUSTRALIA. Annual Reports.

BRYANT, J. The Story of Australia: for Boys and Girls. London, 1920.

COGHLAN, SIR T. A. Labour and Industry in Australia. London, 1918. 4 vols.

COLLINGRIDGE, GEORGE. First Discovery of Australia and New Guinea. Sydney, 1906.

CREED, DR. J. M. My Recollections of Australia and Elsewhere, 1842–1914. London, 1916.

EVA[illegible], H. E. Federalism in Australia. Sydney and London, 1918.

FAV[illegible] E. Explorers of Australia. Melbourne, 1908.

[illegible] (iii) [illegible]NDBOOK ON AUSTRALIA. Melbourne, 1914.

[illegible] FRANK. Peeps at Many Lands. Australia. London, 1911.

FRASER, J. FOSTER. Australia: The Making of a Nation. London, 1910.

GR[illegible]GORY, [illegible] W. [illegible]e Dead Heart of Australia. London, 1906. Australia and New Zealand (in Stan[illegible]'s [illegible]pendium of Geography and Travel). London, 1907. Australia. Cambridge, 1916.

[illegible]TT, [illegible] The Opportunity in Australia. London, 1914.

[illegible]odern Economic History (with Special Reference to Australia). Melbourne, 1921.

[illegible] W. The Native Tribes of South East Australia. London, 1904.

J[illegible]istory of the Australasian Colonies. 3rd Edition. Cambridge, 1912.

JO[illegible]. Notable Australians. Adelaide, 1906 and 1908. Australasia's Prominent People. London, 1914. Fred Johns' Annual, showing Who's Who in Australasia. Adelaide, 1912, 1913, 1914.

JOHNSTON, SIR H. Pioneers in Australasia. London, 1913.

JOSE, A. W. History of Australasia. 7th edition. Sydney, 1921.

KNOWLES, G. S. The Acts of the Parliament of the Commonwealth of Australia from 1901 to 1911, and in force on January 1, 1912. London, 1914.

LEWIN, E. The Commonwealth of Australia. London, 1917.

LONG, C. R. Stories of Australian Exploration. Melbourne. Editions 1903, 1906, and 1913.

MASSON, E. R. An Untamed Territory—The Northern Territory of Australia. London, 1915.

MILLS, Dr. R. C. The Colonization of Australia (1829–42). London, 1915.

MONASH, LIEUT.-GEN. SIR JOHN. The Australian Victories in France in 1918. London, 1920.

MONCKTON, C. A. W. Some Experiences of a New Guinea Resident Magistrate. London, 1921.

MOORE, W. H. The Constitution of the Commonwealth of Australia. London, 1902. Second Edition. Melbourne, 1910.

MORGAN, B. H. The Trade and Industry of Australia. London, 1909.

MURDOCH, WALTER. The Australian Citizen. Melbourne, 1912. The Making of Australia. Melbourne, 1917.

MURPHY, H. M. Labour and Wages in Australia. Melbourne, 1917.

NORTHCOTT, C. H. Australian Social Development. New York, 1918.

ONSLOW, S. M. Early Records of the Macarthurs of Camden, 1789–1834. Sydney, 1914.

OXFORD SURVEY OF EMPIRE (6 vols.). Vol. V. Australasia. London, 1914.

QUICK, HON. SIR J., AND GARRAN, SIR R. R. The Annotated Constitution of the Australian Commonwealth. Sydney, 1901.

QUICK, HON. SIR J., AND GROOM, HON. L. E. The Judicial Power of the Commonwealth. Melbourne, 1904.

QUICK, HON. SIR JOHN. The Legislative Powers of the Commonwealth and the States of Australia. Melbourne and Sydney, 1919.

RANKIN, M. T. Arbitration and Conciliation in Australia. London, 1916.

RUSDEN, G. W. History of Australia. 3 vols. Melbourne, 1908.

SARGENT, A. J. Australasia: Eight Lectures (Great Britain—Colonial Office). London, 1913.

SCHACHNER, R. Australien in Politik, Wirtschaft, Kultur. Bd. I. Jena, 1909; do. Bd. II. Jena, 1911.

SCOTT, ERNEST. A Short History of Australia. Oxford, 1916.

SCOTTISH AGRICULTURAL COMMISSION'S REPORT. Australia: Its Land, Conditions, and Prospects. Edinburgh, 1911.

SEARCY, A. In Australian Tropics. London, 1907.

SPENCER, SIR W. B., AND GILLEN, F. J. The Northern Tribes of Central Australia. London, 1904. Across Australia. 2 vols. London, 1912. The Native Tribes of the Northern Territory of Australia. London, 1914.

SUTCLIFFE, J. T. The History of Trade Unionism in Australia. Melbourne, 1921.

TAYLOR, Dr. T. G. Australia. Physiographic and Economic. Oxford, 1911. A Geography of Australia. Oxford, 1914. With Scott: The Silver Lining. London, 1916. The Australian Environment, especially as controlled by Rainfall. Melbourne, 1918. Agricultural Climatology of Australia. (Quarterly Journal of Royal Meteorological Society, Oct., 1920.)

THOMAS, N. W. Natives of Australia. London, 1906. Kinship Organisations and Group Marriages in Australia. Cambridge, 1906.

THOMSON, R. P. A National History of Australia, New Zealand and the Adjacent Islands. London, 1917.

TURNER, H. G. First Decade of the Australian Commonwealth. London, 1911.

WATSON, Dr. F. Historical Records of Australia, vol. 1, series I–XIII.

WHITE, RIGHT REV. GILBERT (Bishop of Willochra). Thirty Years in Tropical Australia. London, 1918.

WILKINSON, H. L. State Regulation of Prices in Australia. Melbourne, 1917.

WISE, HON. B. R. Commonwealth of Australia. London, 1909. 2nd Edition, London, 1919. The Making of the Australian Commonwealth. London, 1913.

YEAR BOOK OF AUSTRALIA. Annual. Sydney.

2. **Works on Special Subjects.**—In addition to the works set out above, dealing generally with the historical, industrial and personal aspects of the Australian people, there have been a number of recent works upon special subjects, the more important of which will be found in Official Year Book No. 13, pp. 11–12. The following list of more recent works of note may be of interest:—

BAKER, RICHARD T., AND SMITH, H. G. A Research on the Eucalypts. Sydney, 1902. A Research on the Pines of Australia. Sydney, 1910.

BAKER, RICHARD T. Cabinet Timbers of Australia. Sydney, 1913. Australian Flora in Applied Art. Sydney, 1915.

CHAPMAN, F. Australian Fossils. Sydney, 1914.

GUILFOYLE, W. R. Australian Plants. Melbourne, 1910.

HALL, ROBERT. Useful Birds of Southern Australia. Melbourne, 1907.

HAWKESWORTH, A. Australasian Sheep and Wool. 3rd Edition. Sydney, 1911.

HUNT, H. A., TAYLOR, Dr. T. G., AND QUAYLE, E. T. Text Book on the Climate and Weather of Australia. Melbourne, 1914.

LUCAS, A. H. S., AND LE SOUEF, W. H. D. Animals of Australia. Melbourne, 1909. The Birds of Australia. Melbourne, 1911.

MAIDEN, J. H. Critical Revision of the Genus Eucalyptus. 5 vols. and 3 parts of 6th vol. Sydney, 1903-21. Forest Flora of New South Wales. 6 vols. and 3 parts of 7th vol. Sydney, 1904-21.

SCHULER, P. F. E. Australia in Arms. London, 1916.

TAYLOR, Dr. T. G. Australian Meteorology. Oxford, 1920.

SECTION II.

DISCOVERY, COLONISATION, AND FEDERATION OF AUSTRALIA.

§ 1. Early Knowledge of Australia.

A brief, though fairly comprehensive, account of the discovery and early knowledge of Australia was given in Year Book No. 1 (pp. 44 to 51). This account appeared in a condensed form in Year Books Nos. 2, 3, and 4. Bibliographical references to the subject were also given in Year Book No. 1 (p. 49). Exigencies of space prevent the inclusion of any further reference to this subject in the present issue.

§ 2. The Taking Possession of Australia.

Reference was made to the more important facts relating to the taking possession and annexation of Australia in each of the first four issues of this book: see preferably Year Book No. 4 (pp. 15 and 16). In so far as the annexation of the eastern parts is concerned, a full historical account of the period may be found in the "Historical Records of New South Wales," Vol. I., parts 1 and 2. For an account of the annexation of Western Australia, reference may be made to the West Australian Year Book, 1905, Part I.

§ 3. The Creation of the Several Colonies.

1. **Introduction.**—A historical summary of the facts relating to the creation of the several colonies and the changes in the boundaries of certain of the colonies has appeared in previous issues of this book: see Year Book No. 4 (pp. 16 to 23). The main facts in this connection may be traced by reference to the maps in preceding issues (see Year Book, No. 4, pp. 17 and 18). The dates of annexation, etc., are given in Official Year Book No. 13, p. 12.

The immense area generally known as Australasia had, by 1863, been divided into seven distinct colonies, the areas of which are shewn below. The areas of the Northern Territory and the Federal Capital Territory, which are now under the exclusive jurisdiction of the Commonwealth, are given separately.

On the 1st January, 1901, the colonies mentioned above, with the exception of New Zealand, were federated under the name of the "Commonwealth of Australia," the designation of "Colonies" being at the same time changed into that of "States." The total area of the Commonwealth is, therefore, 2,974,581 square miles. The dates of creation and the areas of the separate colonies and territories, as determined on the final adjustment of their boundaries, are shewn in the following table :—

DATES OF CREATION AND AREAS OF THE SEVERAL COLONIES AND TERRITORIES.

Colony.	Year of Formation into Separate Colony.	Present Area in Square Miles.	Colony.	Year of Formation into Separate Colony.	Present Area in Square Miles.
New South Wales	1786	309,432(a)	New Zealand ..	1841	104,751
Tasmania ..	1825	26,215	Victoria ..	1851	87,884
Western Australia	1829	975,920	Queensland ..	1859	670,500
South Australia (proper)	1834	380,070	Northern Territory	1863	523,620
			Federal Capital Territory ..	1911	940(b)

Commonwealth .. .. 2,974,581 square miles.
Australasia .. .. 3,079,332 square miles.

(a) Exclusive of Federal Capital Territory (Canberra and Jervis Bay).
(b) Prior to 1911 included with New South Wales.

2. **New Guinea or Papua.**—Under the administration of the Commonwealth, but not included in it, is British New Guinea or Papua, finally annexed by the British Government in 1884. This Territory was for a number of years administered by the Queensland Government, but was transferred to the Commonwealth by proclamation on the 1st September, 1906, under the authority of the Papua Act (Commonwealth) of 16th November, 1905. The area of Papua is about 90,540 square miles. More extended reference to this dependency of the Commonwealth will be found in Section XXIX., as also a reference to the late German territory on the island.

3. **Transfer of the Northern Territory to the Commonwealth.**—On the 7th December, 1907, the Commonwealth and the State of South Australia entered into an agreement for the surrender to and acceptance by the Commonwealth of the Northern Territory, subject to approval by the Parliaments of the Commonwealth and the State. This approval was given by the South Australian Parliament under the Northern Territory Surrender Act 1907 (assented to on the 14th May, 1908), and by the Commonwealth Parliament under the Northern Territory Acceptance Act 1910 (assented to on the 16th November, 1910). The Territory accordingly was transferred by proclamation to the Commonwealth on the 1st January, 1911. Further information may be found in Section XXXII. of this book on "The Northern Territory."

4. **Norfolk Island.**—Although administered for many years by the Government of New South Wales, this island was, until 1st July, 1914, a separate Crown colony. On that date it was taken over by the Federal Parliament as a territory of the Commonwealth. Further reference to the island will be found in the latter part of Section XXXIV.

§ 4. Transfer of the Federal Capital Territory to the Commonwealth.

On the 18th October, 1909, the Commonwealth and the State of New South Wales entered into an agreement for the surrender to and acceptance by the Commonwealth of an area of 912 square miles as the seat of Government of the Commonwealth. In December, 1909, Acts were passed by the Commonwealth and New South Wales Parliaments, approving the agreement, and on the 5th December, 1910, a proclamation was issued vesting the Territory in the Commonwealth on and from the 1st January, 1911. By the Jervis Bay Territory Acceptance Act 1915, an area of 28 square miles at Jervis Bay, surrendered by New South Wales according to an agreement made in 1913, was accepted by the Commonwealth. Further reference to this Territory will be found in Section XXXI. of this book.

§ 5. The Exploration of Australia.

A fairly complete, though brief, account of the Exploration of Australia was given in Year Book No. 2 (pp. 20 to 39). A brief summary of the more important facts relating to the subject was given in Year Books Nos. 3 and 4. Maps shewing the progress of Australian exploration may also be found in previous issues (see No. 8, p. 35).

§ 6. The Constitutions of the States.

A brief and condensed statement of the constitutional history of the several States, shewing how their present Constitutions have been built up, may be found in Section II. of the second, third, and fourth issues of the Year Book. (See No. 4, pp. 27 to 32.)

A conspectus of the Acts of Constitution of the Commonwealth and the several States is given in Section No. XXV. of Official Year Book No. 13. The full text of the Commonwealth Constitution Act and amendments thereto appears in §8 hereinafter.

§ 7. The Federal Movement in Australia.

A summary was given in Year Book No. 1 (pp. 17 to 21) of the "Federal Movement in Australia" from its inception to its consummation; a synopsis thereof was given in Year Books Nos. 2, 3, and 4. (See No. 4, pp. 32 to 37.)

§ 8. Creation of the Commonwealth.

1. **The Act.**—The Commonwealth of Australia Constitution Act, 63 and 64 Vic., Chapter 12, namely, an Act to constitute the Commonwealth of Australia, was shewn *in extenso* in Year Book No. 1. In the Year Books Nos. 2, 3, and 4, a summary of the Act was given. As two amending Acts, namely, the Constitution Alteration (Senate Elections) Act 1906, and the Constitution Alteration (State Debts) Act 1909 have been passed, it was thought desirable to insert the Act, as amended, in full in Year Book No. 5 and subsequent issues.

THE COMMONWEALTH OF AUSTRALIA CONSTITUTION ACT, 63 & 64 VICT., CHAPTER 12.

An Act to constitute the Commonwealth of Australia. [9th July, 1900.]

WHEREAS the people of New South Wales, Victoria, South Australia, Queensland, and Tasmania, humbly relying on the blessing of Almighty God, have agreed to unite in one indissoluble Federal Commonwealth under the Crown of the United Kingdom of Great Britain and Ireland, and under the Constitution hereby established:

And whereas it is expedient to provide for the admission into the Commonwealth of other Australasian Colonies and possessions of the Queen:

Be it therefore enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

1. This Act may be cited as the Commonwealth of Australia Constitution Act.

2. The provisions of this Act referring to the Queen shall extend to Her Majesty's heirs and successors in the sovereignty of the United Kingdom.

3. *It shall be lawful for the Queen, with the advice of the Privy Council, to declare by proclamation that, on and after a day therein appointed, not being later than one year after the passing of this Act, the people of New South Wales, Victoria, South Australia, Queensland, and Tasmania, and also, if Her Majesty is satisfied that the people of Western Australia have agreed thereto, of Western Australia, shall be united in a Federal Commonwealth under the name of the Commonwealth of Australia. But the Queen may, at any time after the proclamation, appoint a Governor-General for the Commonwealth.*

4. The Commonwealth shall be established, and the Constitution of the Commonwealth shall take effect, on and after the day so appointed. But the Parliaments of the several colonies may at any time after the passing of this Act make any such laws, to come into operation on the day so appointed, as they might have made if the Constitution had taken effect at the passing of this Act.

5. This Act, and all laws made by the Parliament of the Commonwealth under the Constitution, shall be binding on the courts, judges, and people of every State and of every part of the Commonwealth, notwithstanding anything in the laws of any State; and the laws of the Commonwealth shall be in force on all British ships, the Queen's ships of war excepted, whose first port of clearance and whose port of destination are in the Commonwealth.

6. "The Commonwealth" shall mean the Commonwealth of Australia as established under this Act.

"The States" shall mean such of the colonies of New South Wales, New Zealand, Queensland, Tasmania, Victoria, Western Australia, and South Australia, including the northern territory of South Australia, as for the time being are parts of the Commonwealth, and such colonies or territories as may be admitted into or established by the Commonwealth as States; and each of such parts of the Commonwealth shall be called "a State."

"Original States" shall mean such States as are parts of the Commonwealth at its establishment.

7. The Federal Council of Australasia Act, 1885, is hereby repealed, but so as not to affect any laws passed by the Federal Council of Australasia and in force at the establishment of the Commonwealth.

Any such law may be repealed as to any State by the Parliament of the Commonwealth, or as to any colony not being a State by the Parliament thereof.

8. After the passing of this Act the Colonial Boundaries Act, 1895, shall not apply to any colony which becomes a State of the Commonwealth; but the Commonwealth shall be taken to be a self-governing colony for the purposes of that Act.

9. The Constitution of the Commonwealth shall be as follows:—

THE CONSTITUTION.

This Constitution is divided as follows:—

Chapter I.—The Parliament:—
Part I.—General:
Part II.—The Senate:
Part III.—The House of Representatives:
Part IV.—Both Houses of the Parliament:
Part V.—Powers of the Parliament:
Chapter II.—The Executive Government:
Chapter III.—The Judicature:
Chapter IV.—Finance and Trade:
Chapter V.—The States:
Chapter VI.—New States:
Chapter VII.—Miscellaneous.
Chapter VIII.—Alteration of the Constitution.
The Schedule.

CHAPTER I.—THE PARLIAMENT.

PART I.—GENERAL.

1. The legislative power of the Commonwealth shall be vested in a Federal Parliament, which shall consist of the Queen, a Senate, and a House of Representatives, and which is hereinafter called "The Parliament," or "The Parliament of the Commonwealth."

2. A Governor-General appointed by the Queen shall be Her Majesty's representative in the Commonwealth, and shall have and may exercise in the Commonwealth during the Queen's pleasure, but subject to this Constitution, such powers and functions of the Queen as Her Majesty may be pleased to assign to him.

3. There shall be payable to the Queen out of the Consolidated Revenue Fund of the Commonwealth, for the salary of the Governor-General, an annual sum which, until the Parliament otherwise provides, shall be ten thousand pounds.

The salary of a Governor-General shall not be altered during his continuance in office.

4. The provisions of this Constitution relating to the Governor-General extend and apply to the Governor-General for the time being, or such person as the Queen may appoint to administer the Government of the Commonwealth; but no such person shall be entitled to receive any salary from the Commonwealth in respect of any other office during his administration of the Government of the Commonwealth.

5. The Governor-General may appoint such times for holding the sessions of the Parliament as he thinks fit, and may also from time to time, by Proclamation or otherwise, prorogue the Parliament, and may in like manner dissolve the House of Representatives.

After any general election the Parliament shall be summoned to meet not later than thirty days after the day appointed for the return of the writs.

The Parliament shall be summoned to meet not later than six months after the establishment of the Commonwealth.

6. There shall be a session of the Parliament once at least in every year, so that twelve months shall not intervene between the last sitting of the Parliament in one session and its first sitting in the next session.

PART II.—THE SENATE.

7. The Senate shall be composed of senators for each State, directly chosen by the people of the State, voting, until the Parliament otherwise provides, as one electorate.

But until the Parliament of the Commonwealth otherwise provides, the Parliament of the State of Queensland, if that State be an Original State, may make laws dividing the State into divisions and determining the number of senators to be chosen for each division, and in the absence of such provision the State shall be one electorate.

Until the Parliament otherwise provides there shall be six senators for each Original State. The Parliament may make laws increasing or diminishing the number of senators for each State, but so that equal representation of the several Original States shall be maintained and that no Original State shall have less than six senators.

The senators shall be chosen for a term of six years, and the names of the senators[8] chosen for each State shall be certified by the Governor to the Governor-General.

8. The qualification of electors of senators shall be in each State that which is prescribed by this Constitution, or by the Parliament, as the qualification for electors of members of the House of Representatives: but in the choosing of senators each elector shall vote only once.

9. The Parliament of the Commonwealth may make laws prescribing the method of choosing senators, but so that the method shall be uniform for all the States. Subject to any such law, the Parliament of each State may make laws prescribing the method of choosing the senators for that State.

The Parliament of a State may make laws for determining the times and places of elections of senators for the State.

10. Until the Parliament otherwise provides, but subject to this Constitution, the laws in force in each State, for the time being, relating to elections for the more numerous House of the Parliament of the State shall, as nearly as practicable, apply to elections of senators for the State.

11. The Senate may proceed to the despatch of business, notwithstanding the failure of any State to provide for its representation in the Senate.

12. The Governor of any State may cause writs to be issued for elections of senators for the State. In case of the dissolution of the Senate the writs shall be issued within ten days from the proclamation of such dissolution.

13. As soon as may be after the Senate first meets, and after each first meeting of the Senate following a dissolution thereof, the Senate shall divide the senators chosen for each State into two classes, as nearly equal in number as practicable; and the places of the senators of the first class shall become vacant at the expiration of [the third year] *three years*,[1] and the places of those of the second class at the expiration of [the sixth year] *six years*[1], from the beginning of their term of service; and afterwards the places of senators shall become vacant at the expiration of six years from the beginning of their term of service.[2]

The election to fill vacant places shall be made [in the year at the expiration of which] *within one year before*[1] the places are to become vacant.

For the purpose of this section the term of service of a senator shall be taken to begin on the first day of [January] *July*[1] following the day of his election, except in the cases of the first election and of the election next after any dissolution of the Senate, when it shall be taken to begin on the first day of [January] *July*[1] preceding the day of his election.[2-4]

14. Whenever the number of senators for a State is increased or diminished, the Parliament of the Commonwealth may make such provision for the vacating of the places of senators for the State as it deems necessary to maintain regularity in the rotation.

15. If the place of a senator becomes vacant before the expiration of his term of service, the Houses of Parliament of the State for which he was chosen shall, sitting and voting together, choose a person to hold the place until the expiration of the term, or until the election of a successor as hereinafter provided, whichever first happens. But if the Houses of Parliament of the State are not in session at the time when the vacancy is notified, the Governor of the State, with the advice of the Executive Council thereof, may appoint a person to hold the place until the expiration of fourteen days after the beginning of the next session of the Parliament of the State, or until the election of a successor, whichever first happens.

At the next general election of members of the House of Representatives, or at the next election of senators for the State, whichever first happens, a successor shall, if the term has not then expired, be chosen to hold the place from the date of his election until the expiration of the term.

The name of any senator so chosen or appointed shall be certified by the Governor of the State to the Governor-General.

16. The qualifications of a senator shall be the same as those of a member of the House of Representatives.

17. The Senate shall, before proceeding to the despatch of any other business, choose a senator to be the President of the Senate; and as often as the office of President becomes vacant the Senate shall again choose a senator to be the President.

The President shall cease to hold his office if he ceases to be a senator. He may be removed from office by a vote of the Senate, or he may resign his office or his seat by writing addressed to the Governor-General.

18. Before or during any absence of the President, the Senate may choose a senator to perform his duties in his absence.

19. A senator may, by writing addressed to the President, or to the Governor-General if there is no President or if the President is absent from the Commonwealth, resign his place, which thereupon shall become vacant.

20. The place of a senator shall become vacant if for two consecutive months of any session of the Parliament he, without the permission of the Senate, fails to attend the Senate.

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1. As amended by section 2 of the Constitution Alteration (Senate Elections) 1906. The words in square brackets have been repealed; amendments are shewn in italics.

2. Under sections 3 and 4 of the Constitution Alteration (Senate Elections) 1906, it was also provided that—

(*a*) The terms of service of the senators whose places would, but for this Act, become vacant at the expiration of the year One thousand nine hundred and nine are extended until the thirtieth day of June One thousand nine hundred and ten.

(*b*) The terms of service of the senators whose places would, but for this Act, become vacant at the expiration of the year One thousand nine hundred and twelve are extended until the thirtieth day of June One thousand nine hundred and thirteen.

(*c*) This Act shall not be taken to alter the time of beginning of the term of service of any senator elected in the year One thousand nine hundred and six.

3. A bill was passed by the Commonwealth Parliament on the 2nd September, 1915, for the submission to the electors of a proposed law to alter section 13 by inserting after *three years* the words *and two months*, and after *six years* where mentioned the words *and four months*.

4. It was also proposed by the bill alluded to above to alter the foregoing paragraph so as to read thus:—For the purposes of this section the term of service of the senators elected in the year One thousand nine hundred and fourteen shall be taken to have begun on the first day of October, One thousand nine hundred and fourteen, and the term of service of a senator elected to fill a vacancy thereafter occurring in rotation shall be taken to begin on the day on which the place he is to fill becomes vacant, and the term of service of senators elected at an election next after a dissolution of the Senate shall be taken to begin on the day of the first meeting of the House of Representatives after dissolution. A writ was issued for a referendum (to be taken on the 11th December, 1915, at the same time as referendums for the alteration of the legislative powers of the Commonwealth), but the writs were withdrawn under authority of Act 51 of 1915. See also note to section 51.

21. Whenever a vacancy happens in the Senate, the President, or if there is no President or if the President is absent from the Commonwealth the Governor-General, shall notify the same to the Governor of the State in the representation of which the vacancy has happened.

22. Until the Parliament otherwise provides, the presence of at least one-third of the whole number of the senators shall be necessary to constitute a meeting of the Senate for the exercise of its powers.

23. Questions arising in the Senate shall be determined by a majority of votes, and each senator shall have one vote. The President shall in all cases be entitled to a vote; and when the votes are equal the question shall pass in the negative.

PART III.—THE HOUSE OF REPRESENTATIVES.

24. The House of Representatives shall be composed of members directly chosen by the people of the Commonwealth, and the number of such members shall be, as nearly as practicable, twice the number of the senators.

The number of members chosen in the several States shall be in proportion to the respective numbers of their people, and shall, until the Parliament otherwise provides, be determined, whenever necessary, in the following manner:—

(i) A quota shall be ascertained by dividing the number of the people of the Commonwealth, as shewn by the latest statistics of the Commonwealth, by twice the number of the senators:

(ii) The number of members to be chosen in each State shall be determined by dividing the number of the people of the State, as shewn by the latest statistics of the Commonwealth, by the quota; and if on such division there is a remainder greater than one-half of the quota, one more member shall be chosen in the State.

But notwithstanding anything in this section, five members at least shall be chosen in each Original State.

25. For the purposes of the last section, if by the law of any State all persons of any race are disqualified from voting at elections for the more numerous House of the Parliament of the State, then, in reckoning the number of the people of the State or of the Commonwealth, persons of that race resident in that State shall not be counted.

26. Notwithstanding anything in section twenty-four, the number of members to be chosen in each State at the first election shall be as follows:—

New South Wales	23	South Australia	6
Victoria	20	Tasmania	5
Queensland	8		

Provided that if Western Australia is an Original State, the numbers shall be as follows:—

New South Wales	26	South Australia	7
Victoria	23	Western Australia	5
Queensland	9	Tasmania	5

27. Subject to this Constitution, the Parliament may make laws for increasing or diminishing the number of the members of the House of Representatives.

28. Every House of Representatives shall continue for three years from the first meeting of the House, and no longer, but may be sooner dissolved by the Governor-General.

29. Until the Parliament of the Commonwealth otherwise provides, the Parliament of any State may make laws for determining the divisions in each State for which members of the House of Representatives may be chosen, and the number of members to be chosen for each division. A division shall not be formed out of parts of different States.

In the absence of other provision, each State shall be one electorate.

30. Until the Parliament otherwise provides, the qualification of electors of members of the House of Representatives shall be in each State that which is prescribed by the law of the State as the qualification of electors of the more numerous House of Parliament of the State; but in the choosing of members each elector shall vote only once.[1]

1. The franchise qualification was determined by the Commonwealth Franchise Act 1902.

31. Until the Parliament otherwise provides, but subject to this Constitution, the laws in force in each State for the time being relating to elections for the more numerous House of the Parliament of the State shall, as nearly as practicable, apply to elections in the State of members of the House of Representatives.

32. The Governor-General in Council may cause writs to be issued for general elections of members of the House of Representatives.

After the first general election, the writs shall be issued within ten days from the expiry of a House of Representatives or from the proclamation of a dissolution thereof.

33. Whenever a vacancy happens in the House of Representatives, the Speaker shall issue his writ for the election of a new member, or if there is no Speaker or if he is absent from the Commonwealth the Governor-General in Council may issue the writ.

34. Until the Parliament otherwise provides, the qualifications of a member of the House of Representatives shall be as follows:—

(i) He must be of the full age of twenty-one years, and must be an elector entitled to vote at the election of members of the House of Representatives, or a person qualified to become such elector, and must have been for three years at the least a resident within the limits of the Commonwealth as existing at the time when he is chosen:

(ii) He must be a subject of the Queen, either natural-born or for at least five years naturalized under a law of the United Kingdom, or of a Colony which has become or becomes a State, or of the Commonwealth, or of a State.

35. The House of Representatives shall, before proceeding to the despatch of any other business, choose a member to be the Speaker of the House, and as often as the office of Speaker becomes vacant the House shall again choose a member to be the Speaker.

The Speaker shall cease to hold his office if he ceases to be a member. He may be removed from office by a vote of the House, or he may resign his office or his seat by writing addressed to the Governor-General.

36. Before or during any absence of the Speaker, the House of Representatives may choose a member to perform his duties in his absence.

37. A member may by writing addressed to the Speaker, or to the Governor-General if there is no Speaker or if the Speaker is absent from the Commonwealth, resign his place, which thereupon shall become vacant.

38. The place of a member shall become vacant if for two consecutive months of any session of the Parliament he, without the permission of the House, fails to attend the House.

39. Until the Parliament otherwise provides, the presence of at least one-third of the whole number of the members of the House of Representatives shall be necessary to constitute a meeting of the House for the exercise of its powers.

40. Questions arising in the House of Representatives shall be determined by a majority of votes other than that of the Speaker. The Speaker shall not vote unless the numbers are equal, and then he shall have a casting vote.

PART IV.—BOTH HOUSES OF THE PARLIAMENT.

41. No adult person who has or acquires a right to vote at elections for the more numerous House of the Parliament of a State shall, while the right continues, be prevented by any law of the Commonwealth from voting at elections for either House of the Parliament of the Commonwealth.

42. Every senator and every member of the House of Representatives shall before taking his seat make and subscribe before the Governor-General, or some person authorized by him, an oath or affirmation of allegiance in the form set forth in the schedule to this Constitution.

43. A member of either House of the Parliament shall be incapable of being chosen or of sitting as a member of the other House.

44. Any person who—

(i) Is under any acknowledgment of allegiance, obedience, or adherence to a foreign power, or is a subject or a citizen or entitled to the rights or privileges of a subject or a citizen of a foreign power: or

(ii) Is attainted of treason, or has been convicted and is under sentence, or subject to be sentenced, for any offence punishable under the law of the Commonwealth or of the State by imprisonment for one year or longer: or

(iii) Is an undischarged bankrupt or insolvent: or

(iv) Holds any office of profit under the Crown, or any pension payable during the pleasure of the Crown out of any of the revenues of the Commonwealth: or

(v) Has any direct or indirect pecuniary interest in any agreement with the Public Service of the Commonwealth otherwise than as a member and in common with the other members of an incorporated company consisting of more than twenty-five persons:

shall be incapable of being chosen or of sitting as a senator or a member of the House of Representatives.

But sub-section iv. does not apply to the office of any of the Queen's Ministers of State for the Commonwealth, or of any of the Queen's Ministers for a State, or to the receipt of pay, half-pay, or a pension by any person as an officer or member of the Queen's navy or army, or to the receipt of pay as an officer or member of the naval or military forces of the Commonwealth by any person whose services are not wholly employed by the Commonwealth.

45. If a senator or member of the House of Representatives—

(i) Becomes subject to any of the disabilities mentioned in the last preceding section: or

(ii) Takes the benefit, whether by assignment, composition, or otherwise, of any law relating to bankrupt or insolvent debtors: or

(iii) Directly or indirectly takes or agrees to take any fee or honorarium for services rendered to the Commonwealth, or for services rendered in the Parliament to any person or State:

his place shall thereupon become vacant.

46. Until the Parliament otherwise provides, any person declared by this Constitution to be incapable of sitting as a senator or as a member of the House of Representatives shall, for every day on which he so sits, be liable to pay the sum of one hundred pounds to any person who sues for it in any court of competent jurisdiction.

47. Until the Parliament otherwise provides, any question respecting the qualification of a senator or of a member of the House of Representatives, or respecting a vacancy in either House of the Parliament, and any question of a disputed election to either House, shall be determined by the House in which the question arises.

48. Until the Parliament otherwise provides, each senator and each member of the House of Representatives shall receive an allowance of four hundred pounds a year, to be reckoned from the day on which he takes his seat.[1]

49. The powers, privileges, and immunities of the Senate and of the House of Representatives, and of the members and the committees of each House, shall be such as are declared by the Parliament, and until declared shall be those of the Commons House of Parliament of the United Kingdom, and of its members and committees, at the establishment of the Commonwealth.

50. Each House of the Parliament may make rules and orders with respect to—

(i) The mode in which its powers, privileges, and immunities may be exercised and upheld;

(ii) The order and conduct of its business and proceedings either separately or jointly with the other House.

1. By the Parliamentary Allowances Act 1907, the amount of the allowance was increased to £600 a year; and by the Parliamentary Allowances Act 1920 to £1,000 a year. (The latter Act also apportioned special allowances to the President of the Senate; the Speaker of the House of Representatives; the Chairmen of Committees in both Houses; and the Opposition Leaders in both Houses.)

PART V.—POWERS OF THE PARLIAMENT.[1 2 3]

51. The Parliament shall, subject to this Constitution, have power to make laws for the peace, order, and good government of the Commonwealth with respect to—

(i) Trade and commerce with other countries, and among the States :[1 2]
(ii) Taxation ; but so as not to discriminate between States or parts of States :
(iii) Bounties on the production or export of goods, but so that such bounties shall be uniform throughout the Commonwealth :
(iv) Borrowing money on the public credit of the Commonwealth :
(v) Postal, telegraphic, telephonic, and other like services :
(vi) The naval and military defence of the Commonwealth and of the several States, and the control of the forces to execute and maintain the laws of the Commonwealth :
(vii) Lighthouses, lightships, beacons and buoys :
(viii) Astronomical and meteorological observations :
(ix) Quarantine :
(x) Fisheries in Australian waters beyond territorial limits :
(xi) Census and statistics :
(xii) Currency, coinage, and legal tender :
(xiii) Banking, other than State banking ; also State banking extending beyond the limits of the State concerned, the incorporation of banks, and the issue of paper money :

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1. Two proposed laws for the alteration of the Constitution were submitted to the people for acceptance or rejection on the 26th April, 1911. They were (A) The Constitution Alteration (Legislative Powers) 1910, and (B) the Constitution Alteration (Monopolies) 1910.

(A) *Constitution Alteration (Legislative Powers) 1910.* The object of this proposed law was to extend the powers of the Commonwealth Government (under section 51 of the Constitution) in four directions, viz.—(*a*) Trade and Commerce, (*b*) Corporations, (*c*) Industrial matters, and (*d*) Trusts and monopolies.

(*a*) *Trade and Commerce.* In Section 51, para. (i.) of the Constitution, it was proposed to omit the words " with other countries, and among the States," so as to give the Commonwealth Parliament power to legislate with respect to trade and commerce, without limitation.

(*b*) *Corporations.* It was proposed to omit the words (para. xx.) " Foreign corporations, and trading " or financial corporations formed within the limits of the Commonwealth," and to insert in lieu thereof the words—" Corporations including (*a*) the creation, dissolution, regulation, and control of corporations ; " (*b*) corporations formed under the law of a State (except any corporation formed solely for religious, " charitable, scientific or artistic purposes, and not for the acquisition of gain by the corporation or its " members), including their dissolution, regulation and control ; and (*c*) foreign corporations, including " their regulation and control."

(*c*) *Industrial Matters.* In para. xxxv. it was proposed to omit the words " Conciliation and arbitration " for the prevention and settlement of industrial disputes extending beyond the limits of any one State," and to insert in lieu thereof the words " labour and employment, including (*a*) the wages and conditions " of labour and employment in any trade, industry, or calling ; and (*b*) the prevention and settlement " of industrial disputes, including disputes in relation to employment on or about railways, the property " of any State."

(*d*) *Trusts and Monopolies.* It was proposed to amend Section 51 of the Constitution by adding at the end thereof the following paragraph :—" (xl.) Combinations and monopolies in relation to the " production, manufacture, or supply of goods or services."

(B) *Constitution Alteration (Monopolies) 1910.* The object of this proposed law was to alter the Constitution by inserting, after Section 51 thereof, the following section :—" 51A. When each House of " Parliament, in the same session, has by resolution declared that the industry or business of producing, " manufacturing, or supplying goods, or of supplying any specified services, is the subject of any monopoly " the Parliament shall have power to make laws for carrying on the industry or business by or under the " control of the Commonwealth, and acquiring for that purpose on just terms any property used in con- " nection with the industry or business."

Neither of the proposed laws was approved by the people.

On the 31st May, 1913, the date of the Parliamentary elections, the same proposed alterations were again submitted to the people as five distinct laws, with an additional one whereby the conditions of employment and the settlement of disputes relating thereto in the several State railway services might be brought within the jurisdiction of the Commonwealth. All six proposed laws were negatived by the people.—See section XXV. §2.

2. On the 15th July, 1915, the Commonwealth Parliament passed a bill for the submission to the electors of proposed laws to amend the Constitution in regard to the legislative powers of the Commonwealth Parliament. The proposed amendments differed somewhat from those submitted to the electors in the years 1911 and 1913. Thus in regard to (A) (*b*) *Corporations* (see 1 above) it was proposed to specifically exclude municipal and governmental corporations. (A) (*c*) was modified to read thus after " to insert in lieu (in their stead) the words "—Including (*a*) Labour, (*b*) Employment and unemployment, (*c*) The terms and conditions of labour and employment in any trade, industry, occupation, or calling, (*d*) The rights and obligations of employers and employees, (*e*) Strikes and lockouts, (*f*) The maintenance of industrial peace, (*g*) The settlement of industrial disputes. With regard to railway disputes it was proposed to insert after paragraph (xxxv.) of section 51 the following paragraph :—(xxxv. A.) Conciliation and arbitration for the prevention and settlement of industrial disputes in relation to employment in the railway service of a State. (A) (*d*) was modified to read (xl.) Trusts, combinations, monopolies, and arrangements in relation to (*a*) the production, manufacture, or supply of goods, or the supply of services, or (*b*) the ownership of the means of production, manufacture, or supply of goods, or supply of services. (B) (see 1 above) was modified as follows :—After " has by resolution " the words " passed by an absolute majority of its members " were added, and an additional subsection was inserted to the effect that the section was not to apply to any industry or business conducted or carried on by the Government of a State, or any public authority constituted under a State. Writs were issued for referendums to be held on the 11th December, 1915, but they were withdrawn under Act 51 of 1915.

3. On 28th October, 1919, a further submission of proposals to alter the Constitution was decreed by Parliament. These also related to the extension of the legislative powers of the Commonwealth in regard to industrial disputes, and to the nationalization of monopolies. Neither of the proposals was approved by the people.

(xiv) Insurance, other than State insurance; also State insurance extending beyond the limits of the State concerned:

(xv) Weights and measures:

(xvi) Bills of exchange and promissory notes:

(xvii) Bankruptcy and insolvency:

(xviii) Copyrights, patents of inventions and designs, and trade marks:

(xix) Naturalization and aliens:

(xx) Foreign corporations, and trading or financial corporations formed within the limits of the Commonwealth:[1]

(xxi) Marriage:

(xxii) Divorce and matrimonial causes; and in relation thereto, parental rights, and the custody and guardianship of infants:

(xxiii) Invalid and old-age pensions:

(xxiv) The service and execution throughout the Commonwealth of the civil and criminal process and the judgments of the Courts of the States:

(xxv) The recognition throughout the Commonwealth of the laws, the public Acts and records, and the judicial proceedings of the States:

(xxvi) The people of any race, other than the aboriginal race in any State, for whom it is deemed necessary to make special laws:

(xxvii) Immigration and emigration:

(xxviii) The influx of criminals:

(xxix) External affairs:

(xxx) The relations of the Commonwealth with the islands of the Pacific:

(xxxi) The acquisition of property on just terms from any State or person for any purpose in respect of which the Parliament has power to make laws:

(xxxii) The control of railways with respect to transport for the naval and military purposes of the Commonwealth:

(xxxiii) The acquisition, with the consent of a State, of any railways of the State on terms arranged between the Commonwealth and the State:

(xxxiv) Railway construction and extension in any State with the consent of that State:

(xxxv) Conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State:[1]

(xxxvi) Matters in respect of which this Constitution makes provision until the Parliament otherwise provides:

(xxxvii) Matters referred to the Parliament of the Commonwealth by the Parliament or Parliaments of any State or States, but so that the law shall extend only to States by whose Parliaments the matter is referred, or which afterwards adopt the law:

(xxxviii) The exercise within the Commonwealth, at the request or with the concurrence of the Parliaments of all the States directly concerned, of any power which can at the establishment of this Constitution be exercised only by the Parliament of the United Kingdom or by the Federal Council of Australasia:

(xxxix) Matters incidental to the execution of any power vested by this Constitution in the Parliament or in either House thereof, or in the Government of the Commonwealth, or in the Federal Judicature, or in any department or officer of the Commonwealth.

52. The Parliament shall, subject to this Constitution, have exclusive power to make laws for the peace, order, and good government of the Commonwealth, with respect to—

(i) The seat of Government of the Commonwealth, and all places acquired by the Commonwealth for public purposes:

(ii) Matters relating to any department of the public service the control of which is by this Constitution transferred to the Executive Government of the Commonwealth:

(iii) Other matters declared by this Constitution to be within the exclusive power of the Parliament.

53. Proposed laws appropriating revenue or moneys, or imposing taxation, shall not originate in the Senate. But a proposed law shall not be taken to appropriate revenue or moneys, or to impose taxation, by reason only of its containing provisions for the imposition or appropriation of fines or other pecuniary penalties, or for the demand or payment or appropriation of fees for licenses, or fees for services under the proposed law.

The Senate may not amend proposed laws imposing taxation, or proposed laws appropriating revenue or moneys for the ordinary annual services of the Government.

The Senate may not amend any proposed laws so as to increase any proposed charge or burden on the people.

The Senate may at any stage return to the House of Representatives any proposed law which the Senate may not amend, requesting, by message, the omission or amendment of any items or provisions therein. And the House of Representatives may, if it thinks fit, make any of such omissions or amendments, with or without modifications.

Except as provided in this section, the Senate shall have equal power with the House of Representatives in respect of all proposed laws.

54. The proposed law which appropriates revenue or moneys for the ordinary annual services of the Government shall deal only with such appropriation.

55. Laws imposing taxation shall deal only with the imposition of taxation, and any provisions therein dealing with any other matter shall be of no effect.

Laws imposing taxation, except laws imposing duties of customs or of excise, shall deal with one subject of taxation only; but laws imposing duties of customs shall deal with duties of customs only, and laws imposing duties of excise shall deal with duties of excise only.

56. A vote, resolution, or proposed law for the appropriation of revenue or moneys shall not be passed unless the purpose of the appropriation has in the same session been recommended by message of the Governor-General to the House in which the proposal originated.

57. If the House of Representatives passes any proposed law, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, and if after an interval of three months the House of Representatives, in the same or the next session, again passes the proposed law with or without any amendments which have been made, suggested, or agreed to by the Senate, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, the Governor-General may dissolve the Senate and the House of Representatives simultaneously. But such dissolution shall not take place within six months before the date of the expiry of the House of Representatives by effluxion of time.

If after such dissolution the House of Representatives again passes the proposed law, with or without any amendments which have been made, suggested, or agreed to by the Senate, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, the Governor-General may convene a joint sitting of the members of the Senate and of the House of Representatives.

The members present at the joint sitting may deliberate and shall vote together upon the proposed law as last proposed by the House of Representatives, and upon amendments, if any, which have been made therein by one House and not agreed to by the other, and any such amendments which are affirmed by an absolute majority of the total number of the members of the Senate and House of Representatives shall be taken to have been carried, and if the proposed law, with the amendments, if any, so carried is affirmed by an absolute majority of the total number of members of the Senate and House of Representatives, it shall be taken to have been duly passed by both Houses of the Parliament, and shall be presented to the Governor-General for the Queen's assent.

58. When a proposed law passed by both Houses of the Parliament is presented to the Governor-General for the Queen's assent, he shall declare, according to his discretion, but subject to this Constitution, that he assents in the Queen's name, or that he withholds assent, or that he reserves the law for the Queen's pleasure.

The Governor-General may return to the House in which it originated any proposed law so presented to him, and may transmit therewith any amendments which he may recommend, and the Houses may deal with the recommendation.

59. The Queen may disallow any law within one year from the Governor-General's assent, and such disallowance on being made known by the Governor-General by speech or message to each of the Houses of the Parliament, or by Proclamation, shall annul the law from the day when the disallowance is so made known.

60. A proposed law reserved for the Queen's pleasure shall not have any force unless and until within two years from the day on which it was presented to the Governor-General for the Queen's assent the Governor-General makes known, by speech or message to each of the Houses of Parliament, or by Proclamation, that it has received the Queen's assent.

CHAPTER II.—THE EXECUTIVE GOVERNMENT.

61. The executive power of the Commonwealth is vested in the Queen and is exerciseable by the Governor-General as the Queen's representative, and extends to the execution and maintenance of this Constitution, and of the laws of the Commonwealth.

62. There shall be a Federal Executive Council to advise the Governor-General in the government of the Commonwealth, and the members of the Council shall be chosen and summoned by the Governor-General and sworn as Executive Councillors, and shall hold office during his pleasure.

63. The provisions of this Constitution referring to the Governor-General in Council shall be construed as referring to the Governor-General acting with the advice of the Federal Executive Council.

64. The Governor-General may appoint officers to administer such departments of State of the Commonwealth as the Governor-General in Council may establish.

Such officers shall hold office during the pleasure of the Governor-General. They shall be members of the Federal Executive Council, and shall be the Queen's Ministers of State for the Commonwealth.

After the first general election no Minister of State shall hold office for a longer period than three months unless he is or becomes a senator or a member of the House of Representatives.

65. Until the Parliament otherwise provides, the Ministers of State shall not exceed seven in number, and shall hold such offices as the Parliament prescribes, or, in the absence of provision, as the Governor-General directs.[1]

66. There shall be payable to the Queen, out of the Consolidated Revenue Fund of the Commonwealth, for the salaries of the Ministers of State, an annual sum which, until the Parliament otherwise provides, shall not exceed twelve thousand pounds a year.[1]

67. Until the Parliament otherwise provides, the appointment and removal of all other officers of the Executive Government of the Commonwealth shall be vested in the Governor-General in Council, unless the appointment is delegated by the Governor-General in Council or by a law of the Commonwealth to some other authority.

68. The command in chief of the naval and military forces of the Commonwealth is vested in the Governor-General as the Queen's representative.

69. On a date or dates to be proclaimed by the Governor-General after the establishment of the Commonwealth the following departments of the public service in each State shall be transferred to the Commonwealth :—[2]

Posts, telegraphs, and telephones :	Lighthouses, lightships, beacons, and buoys :
Naval and military defence :	Quarantine.

But the departments of customs and of excise in each State shall become transferred to the Commonwealth on its establishment.

70. In respect of matters which, under this Constitution, pass to the Executive Government of the Commonwealth, all powers and functions which at the establishment of the Commonwealth are vested in the Governor of a Colony, or in the Governor of a Colony with the advice of his Executive Council, or in any authority of a Colony, shall vest in the Governor-General, or in the Governor-General in Council, or in the authority exercising similar powers under the Commonwealth, as the case requires.

1. By the Ministers of State Acts 1915 and 1917, the Ministers of State may exceed seven, but shall not exceed nine. £15,300 annually was allotted by these Acts for their salaries; and £800 per annum each was added by the Parliamentary Allowances Act 1920.

2. As to departments and dates of transfer see Section XIX.—COMMONWEALTH FINANCE, § 1

CHAPTER III.—THE JUDICATURE.

71. The judicial power of the Commonwealth shall be vested in a Federal Supreme Court, to be called the High Court of Australia, and in such other federal courts as the Parliament creates, and in such other courts as it invests with federal jurisdiction. The High Court shall consist of a Chief Justice, and so many other Justices, not less than two, as the Parliament prescribes.

72. The Justices of the High Court and of the other courts created by the Parliament—

(i) Shall be appointed by the Governor-General in Council:

(ii) Shall not be removed except by the Governor-General in Council, on an address from both Houses of the Parliament in the same session, praying for such removal on the ground of proved misbehaviour or incapacity:

(iii) Shall receive such remuneration as the Parliament may fix: but the remuneration shall not be diminished during their continuance in office.

73. The High Court shall have jurisdiction, with such exceptions and subject to such regulations as the Parliament prescribes, to hear and determine appeals from all judgments, decrees, orders, and sentences—

(i) Of any Justice or Justices exercising the original jurisdiction of the High Court:

(ii) Of any other federal court, or court exercising federal jurisdiction; or of the Supreme Court of any State, or of any other court of any State from which at the establishment of the Commonwealth an appeal lies to the Queen in Council:

(iii) Of the Inter-State Commission, but as to questions of law only:

and the judgment of the High Court in all such cases shall be final and conclusive.

But no exception or regulation prescribed by the Parliament shall prevent the High Court from hearing and determining any appeal from the Supreme Court of a State in any matter in which at the establishment of the Commonwealth an appeal lies from such Supreme Court to the Queen in Council.

Until the Parliament otherwise provides, the conditions of and restrictions on appeals to the Queen in Council from the Supreme Courts of the several States shall be applicable to appeals from them to the High Court.

74. No appeal shall be permitted to the Queen in Council from a decision of the High Court upon any question, howsoever arising, as to the limits *inter se* of the Constitutional powers of the Commonwealth and those of any State or States, or as to the limits *inter se* of the Constitutional powers of any two or more States, unless the High Court shall certify that the question is one which ought to be determined by Her Majesty in Council.

The High Court may so certify if satisfied that for any special reason the certificate should be granted, and thereupon an appeal shall lie to Her Majesty in Council on the question without further leave.

Except as provided in this section, this Constitution shall not impair any right which the Queen may be pleased to exercise by virtue of Her Royal prerogative to grant special leave of appeal from the High Court to Her Majesty in Council. The Parliament may make laws limiting the matters in which such leave may be asked, but proposed laws containing any such limitation shall be reserved by the Governor-General for Her Majesty's pleasure.

75. In all matters—

(i) Arising under any treaty:

(ii) Affecting consuls or other representatives of other countries:

(iii) In which the Commonwealth, or a person suing or being sued on behalf of the Commonwealth, is a party:

(iv) Between States, or between residents of different States, or between a State and a resident of another State:

(v) In which a writ of Mandamus or prohibition or an injunction is sought against an officer of the Commonwealth:

the High Court shall have original jurisdiction.

76. The Parliament may make laws conferring original jurisdiction on the High Court in any matter—

(i) Arising under this Constitution, or involving its interpretation :

(ii) Arising under any laws made by the Parliament :

(iii) Of Admiralty and maritime jurisdiction :

(iv) Relating to the same subject-matter claimed under the laws of different States.

77. With respect to any of the matters mentioned in the last two sections the Parliament may make laws—

(i) Defining the jurisdiction of any federal court other than the High Court :

(ii) Defining the extent to which the jurisdiction of any federal court shall be exclusive of that which belongs to or is invested in the courts of the States :

(iii) Investing any court of a State with federal jurisdiction.

78. The Parliament may make laws conferring rights to proceed against the Commonwealth or a State in respect of matters within the limits of the judicial power.

79. The federal jurisdiction of any court may be exercised by such number of judges as the Parliament prescribes.

80. The trial on indictment of any offence against any law of the Commonwealth shall be by jury, and every such trial shall be held in the State where the offence was committed, and if the offence was not committed within any State the trial shall be held at such place or places as the Parliament prescribes.

CHAPTER IV.—FINANCE AND TRADE.

81. All revenues or moneys raised or received by the Executive Government of the Commonwealth shall form one Consolidated Revenue Fund, to be appropriated for the purposes of the Commonwealth in the manner and subject to the charges and liabilities imposed by this Constitution.

82. The costs, charges, and expenses incident to the collection, management, and receipt of the Consolidated Revenue Fund shall form the first charge thereon; and the revenue of the Commonwealth shall in the first instance be applied to the payment of the expenditure of the Commonwealth.

83. No money shall be drawn from the Treasury of the Commonwealth except under appropriation made by law.

But until the expiration of one month after the first meeting of the Parliament the Governor-General in Council may draw from the Treasury and expend such moneys as may be necessary for the maintenance of any department transferred to the Commonwealth and for the holding of the first elections for the Parliament.

84. When any department of the public service of a State becomes transferred to the Commonwealth, all officers of the department shall become subject to the control of the Executive Government of the Commonwealth.

Any such officer who is not retained in the service of the Commonwealth shall, unless he is appointed to some other office of equal emolument in the public service of the State, be entitled to receive from the State any pension, gratuity, or other compensation, payable under the law of the State on the abolition of his office.

Any such officer who is retained in the service of the Commonwealth shall preserve all his existing and accruing rights, and shall be entitled to retire from office at the time, and on the pension or retiring allowance, which would be permitted by the law of the State if his service with the Commonwealth were a continuation of his service with the State. Such pension or retiring allowance shall be paid to him by the Commonwealth; but the State shall pay to the Commonwealth a part thereof, to be calculated on the proportion which his term of service with the State bears to his whole term of service, and for the purpose of the calculation his salary shall be taken to be that paid to him by the State at the time of transfer.

Any officer who is, at the establishment of the Commonwealth, in the public service of a State, and who is, by consent of the Governor of the State with the advice of the Executive Council thereof, transferred to the public service of the Commonwealth, shall have the same rights as if he had been an officer of a department transferred to the Commonwealth and were retained in the service of the Commonwealth.

85. When any department of the public service of a State is transferred to the Commonwealth—

(i) All property of the State of any kind, used exclusively in connexion with the department, shall become vested in the Commonwealth; but, in the case of the departments controlling customs and excise and bounties, for such time only as the Governor-General in Council may declare to be necessary:

(ii) The Commonwealth may acquire any property of the State, of any kind used, but not exclusively used in connexion with the department; the value thereof shall, if no agreement can be made, be ascertained in, as nearly as may be, the manner in which the value of land, or of an interest in land, taken by the State for public purposes is ascertained under the law of the State in force at the establishment of the Commonwealth:

(iii) The Commonwealth shall compensate the State for the value of any property passing to the Commonwealth under this section: if no agreement can be made as to the mode of compensation, it shall be determined under laws to be made by the Parliament:

(iv) The Commonwealth shall, at the date of the transfer, assume the current obligations of the State in respect of the department transferred.

86. On the establishment of the Commonwealth, the collection and control of duties of customs and of excise, and the control of the payment of bounties, shall pass to the Executive Government of the Commonwealth.

87. During a period of ten years after the establishment of the Commonwealth and thereafter until the Parliament otherwise provides, of the net revenue of the Commonwealth from duties of customs and of excise not more than one-fourth shall be applied annually by the Commonwealth towards its expenditure.

The balance shall, in accordance with this Constitution, be paid to the several States, or applied to the payment of interest on debts of the several States taken over by the Commonwealth.[1]

88. Uniform duties of customs shall be imposed within two years after the establishment of the Commonwealth.[2]

89. Until the imposition of uniform duties of customs—

(i) The Commonwealth shall credit to each State the revenues collected therein by the Commonwealth.

(ii) The Commonwealth shall debit to each State—

(*a*) The expenditure therein of the Commonwealth incurred solely for the maintenance or continuance, as at the time of transfer, of any department transferred from the State to the Commonwealth;

(*b*) The proportion of the State, according to the number of its people, in the other expenditure of the Commonwealth.

(iii) The Commonwealth shall pay to each State month by month the balance (if any) in favour of the State.

90. On the imposition of uniform duties of customs the power of the Parliament to impose duties of customs and of excise, and to grant bounties on the production or export of goods, shall become exclusive.

On the imposition of uniform duties of customs all laws of the several States imposing duties of customs or of excise, or offering bounties on the production or export of goods, shall cease to have effect, but any grant of or agreement for any such bounty lawfully made by or under the authority of the Government of any State shall be taken to be good if made before the thirtieth day of June, one thousand eight hundred and ninety-eight, and not otherwise.

91. Nothing in this Constitution prohibits a State from granting any aid to or bounty on mining for gold, silver, or other metals, nor from granting, with the consent of both Houses of the Parliament of the Commonwealth expressed by resolution, any aid to or bounty on the production or export of goods.

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1. This has been known as the Braddon clause. The Surplus Revenue Act 1910 provides for the termination of this clause as from the 31st December, 1910, and for the payment to the States of twenty-five shillings per head of population until the 30th June, 1920, or thereafter, until Parliament otherwise provides, subject to certain adjustments for the year ended 30th June, 1911. For further information see Section XIX. hereinafter.

2. Uniform customs duties were imposed by the Customs Tariff 1902, as from 8th October, 1901.

92. On the imposition of uniform duties of customs, trade, commerce, and inter course among the States, whether by means of internal carriage or ocean navigation shall be absolutely free.

But notwithstanding anything in this Constitution, goods imported before the imposition of uniform duties of customs into any State, or into any Colony which, whilst the goods remain therein, becomes a State, shall, on thence passing into another State within two years after the imposition of such duties, be liable to any duty chargeable on the importation of such goods into the Commonwealth, less any duty paid in respect of the goods on their importation.

93. During the first five years after the imposition of uniform duties of customs and thereafter until the Parliament otherwise provides—

(i) The duties of customs chargeable on goods imported into a State and afterwards passing into another State for consumption, and the duties of excise paid on goods produced or manufactured in a State and afterwards passing into another State for consumption, shall be taken to have been collected not in the former but in the latter State :

(ii) Subject to the last sub-section, the Commonwealth shall credit revenue, debit expenditure, and pay balances to the several States as prescribed by the period preceding the imposition of uniform duties of customs.[1]

94. After five years from the imposition of uniform duties of customs, the Parliament may provide, on such basis as it deems fair, for the monthly payment to the several States of all surplus revenue of the Commonwealth.

95. Notwithstanding anything in this Constitution, the Parliament of the State of Western Australia, if that State be an original State, may, during the first five years after the imposition of uniform duties of customs, impose duties of customs on goods passing into that State and not originally imported from beyond the limits of the Commonwealth; and such duties shall be collected by the Commonwealth.

But any duty so imposed on any goods shall not exceed during the first of such years the duty chargeable on the goods under the law of Western Australia in force at the imposition of uniform duties, and shall not exceed during the second, third, fourth and fifth of such years respectively, four-fifths, three-fifths, two-fifths, and one-fifth of such latter duty, and all duties imposed under this section shall cease at the expiration of the fifth year after the imposition of uniform duties.

If at any time during the five years the duty on any goods under this section is higher than the duty imposed by the Commonwealth on the importation of the like goods, then such higher duty shall be collected on the goods when imported into Western Australia from beyond the limits of the Commonwealth.

96. During a period of ten years after the establishment of the Commonwealth and thereafter until the Parliament otherwise provides, the Parliament may grant financial assistance to any State on such terms and conditions as the Parliament thinks fit.

97. Until the Parliament otherwise provides, the laws in force in any Colony which has become or becomes a State with respect to the receipt of revenue and the expenditure of money on account of the Government of the Colony, and the review and audit of such receipt and expenditure, shall apply to the receipt of revenue and the expenditure of money on account of the Commonwealth in the State in the same manner as if the Commonwealth, or the Government or an officer of the Commonwealth, were mentioned whenever the Colony, or the Government or an officer of the Colony, is mentioned.

98. The power of the Parliament to make laws with respect to trade and commerce extends to navigation and shipping, and to railways the property of any State.

99. The Commonwealth shall not, by any law or regulation of trade, commerce, or revenue, give preference to one State or any part thereof over another State or any part thereof.

100. The Commonwealth shall not, by any law or regulation of trade or commerce, abridge the right of a State or of the residents therein to the reasonable use of the waters of rivers for conservation or irrigation.

1. The Surplus Revenue Act 1908, which was amended by the Surplus Revenue Act 1910, states that the provisions of Section 93 of the Constitution shall expire on the date of the commencement of the Surplus Revenue Act 1908, that is, on 13th June, 1908, and also makes provisions in lieu of the expired provisions. The Surplus Revenue Act 1910 repeals the greater part of the provisions of the Act of 1908. See footnote to Section 87 of this Act.

101. There shall be an Inter-State Commission, with such powers of adjudication and administration as the Parliament deems necessary for the execution and maintenance, within the Commonwealth, of the provisions of this Constitution relating to trade and commerce, and of all laws made thereunder.[1]

102. The Parliament may by any law with respect to trade or commerce forbid, as to railways, any preference or discrimination by any State, or by any authority constituted under a State, if such preference or discrimination is undue and unreasonable, or unjust to any State, due regard being had to the financial responsibilities incurred by any State in connexion with the construction and maintenance of its railways. But no preference or discrimination shall, within the meaning of this section, be taken to be undue and unreasonable, or unjust to any State, unless so adjudged by the Inter-State Commission.

103. The members of the Inter-State Commission—

(i) Shall be appointed by the Governor-General in Council:

(ii) Shall hold office for seven years, but may be removed within that time by the Governor-General in Council, on an address from both Houses of Parliament in the same session praying for such removal on the ground of proved misbehaviour or incapacity:

(iii) Shall receive such remuneration as the Parliament may fix; but such remuneration shall not be diminished during their continuance in office.

104. Nothing in this Constitution shall render unlawful any rate for carriage of goods upon a railway, the property of a State, if the rate is deemed by the Inter-State Commission to be necessary for the development of the territory of the State, and if the rate applies equally to goods within the State and to goods passing into the State from other States.

105. The Parliament may take over from the States their public debts [as existing at the establishment of the Commonwealth],[2] or a proportion thereof according to the respective numbers of their people as shewn by the latest statistics of the Commonwealth, and may convert, renew, or consolidate such debts, or any part thereof; and the State shall indemnify the Commonwealth in respect of the debts taken over, and thereafter the interest payable in respect of the debts shall be deducted and retained from the portions of the surplus revenue of the Commonwealth payable to the several States, or if such surplus is insufficient, or if there is no surplus, then the deficiency or the whole amount shall be paid by the several States.

CHAPTER V.—THE STATES.

106. The Constitution of each State of the Commonwealth shall, subject to this Constitution, continue as at the establishment of the Commonwealth, or as at the admission or establishment of the State, as the case may be, until altered in accordance with the Constitution of the State.

107. Every power of the Parliament of a Colony which has become or becomes a State, shall, unless it is by this Constitution exclusively vested in the Parliament of the Commonwealth or withdrawn from the Parliament of the State, continue as at the establishment of the Commonwealth, or as at the admission or establishment of the State, as the case may be.

108. Every law in force in a Colony which has become or becomes a State, and relating to any matter within the powers of the Parliament of the Commonwealth, shall, subject to this Constitution, continue in force in the State; and, until provision is made in that behalf by the Parliament of the Commonwealth, the Parliament of the State shall have such powers of alteration and of repeal in respect of any such law as the Parliament of the Colony had until the Colony became a State.

109. When a law of a State is inconsistent with a law of the Commonwealth, the latter shall prevail, and the former shall, to the extent of the inconsistency, be invalid.

110. The provisions of this Constitution relating to the Governor of a State extend and apply to the Governor for the time being of the State, or other chief executive officer or administrator of the government of the State.

1. The Commission was brought into existence in 1913, under Act No. 33 of 1912, by the appointment of Commissioners for seven years. This period has expired, but no fresh appointments have been made.

2. Under Section 2 of the Constitution Alteration (State Debts) 1909, the words in square brackets are omitted.

111. The Parliament of a State may surrender any part of the State to the Commonwealth; and upon such surrender, and the acceptance thereof by the Commonwealth, such part of the State shall become subject to the exclusive jurisdiction of the Commonwealth.

112. After uniform duties of customs have been imposed, a State may levy on imports or exports, or on goods passing into or out of the State, such charges as may be necessary for executing the inspection laws of the State; but the net produce of all charges so levied shall be for the use of the Commonwealth; and any such inspection laws may be annulled by the Parliament of the Commonwealth.

113. All fermented, distilled, or other intoxicating liquids passing into any State or remaining therein for use, consumption, sale, or storage, shall be subject to the laws of the State as if such liquids had been produced in the State.

114. A State shall not, without the consent of the Parliament of the Commonwealth, raise or maintain any naval or military force, or impose any tax on property of any kind belonging to the Commonwealth, nor shall the Commonwealth impose any tax on property of any kind belonging to a State.

115. A State shall not coin money, nor make anything but gold and silver coin a legal tender in payment of debts.

116. The Commonwealth shall not make any laws for establishing any religion, or for imposing any religious observance, or for prohibiting the free exercise of any religion, and no religious test shall be required as a qualification for any office or public trust under the Commonwealth.

117. A subject of the Queen, resident in any State, shall not be subject in any other State to any disability or discrimination which would not be equally applicable to him if he were a subject of the Queen resident in such other State.

118. Full faith and credit shall be given, throughout the Commonwealth, to the laws, the public Acts and records, and the judicial proceedings of every State.

119. The Commonwealth shall protect every State against invasion and, on the application of the Executive Government of the State, against domestic violence.

120. Every State shall make provision for the detention in its prisons of persons accused or convicted of offences against the laws of the Commonwealth, and for the punishment of persons convicted of such offences, and the Parliament of the Commonwealth may make laws to give effect to this provision.

CHAPTER VI.—NEW STATES.

121. The Parliament may admit to the Commonwealth or establish new States, and may upon such admission or establishment make or impose such terms and conditions, including the extent of representation in either House of the Parliament, as it thinks fit.

122. The Parliament may make laws for the government of any territory surrendered by any State to and accepted by the Commonwealth, or of any territory placed by the Queen under the authority of and accepted by the Commonwealth, or otherwise acquired by the Commonwealth, and may allow the representation of such territory in either House of the Parliament to the extent and on the terms which it thinks fit.

123. The Parliament of the Commonwealth may, with the consent of the Parliament of a State, and the approval of the majority of the electors of the State voting upon the question, increase, diminish, or otherwise alter the limits of the State, upon such terms and conditions as may be agreed on, and may, with the like consent, make provision respecting the effect and operation of any increase or diminution or alteration of territory in relation to any State affected.

124. A new State may be formed by separation of territory from a State, but only with consent of the Parliament thereof, and a new State may be formed by the union of two or more States or parts of States, but only with the [illegible] Parliaments of the States affected.

CHAPTER VII.—MISCELLANEOUS.

125. The seat of Government of the Commonwealth shall be determined by the Parliament, and shall be within territory which shall have been granted to or acquired by the Commonwealth, and shall be vested in and belong to the Commonwealth, and shall be in the State of New South Wales, and be distant not less than one hundred miles from Sydney.

Such territory shall contain an area of not less than one hundred square miles, and such portion thereof as shall consist of Crown lands shall be granted to the Commonwealth without any payment therefor.

The Parliament shall sit at Melbourne until it meet at the seat of Government.

126. The Queen may authorise the Governor-General to appoint any person, or any persons jointly or severally, to be his deputy or deputies within any part of the Commonwealth, and in that capacity to exercise during the pleasure of the Governor-General such powers and functions of the Governor-General as he thinks fit to assign to such *deputy or deputies, subject to any limitations expressed or directions given by the Queen* : but the appointment of such deputy or deputies shall not affect the exercise by the Governor-General himself of any power or function.

127. In reckoning the numbers of the people of the Commonwealth, or of a State or other part of the Commonwealth, aboriginal natives shall not be counted.

CHAPTER VIII.—ALTERATION OF THE CONSTITUTION.[1]

128. This Constitution shall not be altered except in the following manner :—

The proposed law for the alteration thereof must be passed by an absolute majority of each *House of the Parliament, and not less than two nor more than six months after* its passage through both Houses the proposed law shall be submitted in each State to the electors qualified to vote for the election of members of the House of Representatives.[2]

But if either House passes any such proposed law by an absolute majority, and the other House rejects or fails to pass it or passes it with any amendment to which the first-mentioned House will not agree, and if after an interval of three months the first-mentioned House in the same or the next session again passes the proposed law by an absolute majority with or without any amendment which has been made or agreed to by the other House, and such other House rejects or fails to pass it or passes it with any amendment to which the first-mentioned House will not agree, the Governor-General may submit the proposed law as last proposed by the first-mentioned House, and either with or without any amendments subsequently agreed to by both Houses, to the electors in each State qualified to vote for the election of the House of Representatives.

When a proposed law is submitted to the electors the vote shall be taken in such manner as the Parliament prescribes. But until the qualification of electors of members of the House of Representatives becomes uniform throughout the Commonwealth, only one-half the electors voting for and *against* the *proposed* law shall be counted in any State in which adult suffrage prevails.

And if in a majority of the States a majority of the electors voting approve the proposed law, and if a majority of all the electors voting also approve the proposed law, it shall be presented to the Governor-General for the Queen's assent.

No alteration diminishing the proportionate representation of any State in either House of the Parliament, or the minimum number of representatives of a State in the House of Representatives, or increasing, diminishing, or otherwise altering the limits of the State, or in any manner affecting the provisions of the Constitution in relation thereto, shall become law unless the majority of the electors voting in that State approve the proposed law.

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1. The Constitution has been altered by the following Acts :—The Constitution Alteration (Senate Elections) 1906 (No. 1 of 1907) ; and the Constitution Alteration (State Debts) 1909 (No. 3 of 1910).

2. The Referendum (Constitution Alteration) Act 1906–1919, provides the necessary machinery for the submission to the electors of any proposed law for the alteration of the Constitution.

SCHEDULE.

OATH.

I, *A.B.*, do swear that I will be faithful and bear true allegiance to Her Majesty Queen Victoria, Her heirs and successors according to law. So HELP ME GOD!

AFFIRMATION.

I, *A.B.*, do solemnly and sincerely affirm and declare that I will be faithful and bear true allegiance to Her Majesty Queen Victoria, Her heirs and successors according to law.

(NOTE.—*The name of the King or Queen of the United Kingdom of Great Britain and Ireland for the time being is to be substituted from time to time.*)

2. **The Royal Proclamation.**—The preceding Act received the Royal assent on the 9th July, 1900. This made it lawful to declare that the people of Australia should be united in a Federal Commonwealth. This proclamation, made on the 17th September, 1900, constituted the Commonwealth as from the 1st January, 1901: it reads as follows:—

BY THE QUEEN.
A PROCLAMATION.

(Signed) VICTORIA R.

WHEREAS by an Act of Parliament passed in the Sixty-third and Sixty-fourth Years of Our Reign, intituled "*An Act to constitute the Commonwealth of Australia*," it is enacted that it shall be lawful for the Queen, with the advice of the Privy Council, to declare by Proclamation, that, on and after a day therein appointed, not being later than One Year after the passing of this Act, the people of *New South Wales*, *Victoria*, *South Australia*, *Queensland*, and *Tasmania*, and also, if Her Majesty is satisfied that the people of *Western Australia* have agreed thereto, of *Western Australia*, shall be united in a Federal Commonwealth under the name of the Commonwealth of Australia.

And whereas We are satisfied that the people of *Western Australia* have agreed thereto accordingly.

We therefore, by and with the advice of Our Privy Council, have thought fit to issue this Our Royal Proclamation, and We do hereby declare that on and after the First day of *January* One thousand nine hundred and one, the people of *New South Wales*, *Victoria*, *South Australia*, *Queensland*, *Tasmania*, and *Western Australia* shall be united in a Federal Commonwealth under the name of the Commonwealth of *Australia*.

Given at Our Court at *Balmoral* this Seventeenth day of *September*, in the Year of Our Lord One thousand nine hundred, and in the Sixty-fourth Year of Our Reign.

GOD SAVE THE QUEEN.

§ 9. Commonwealth Legislation.

1. **The Commonwealth Parliaments.**—The first Parliament of the Commonwealth was convened by proclamation dated 29th April, 1901, by His Excellency the late Marquis of Linlithgow, then Earl of Hopetoun, Governor-General. It was opened on the 9th May following by H.R.H. the Duke of Cornwall and York, who had been sent to Australia for that purpose by His Majesty the King; the Rt. Hon. Sir Edmund Barton, P.C., G.C.M.G., K.C., being Prime Minister.

The following table gives the number and duration of Parliaments since Federation:—

COMMONWEALTH PARLIAMENTS, 1901 TO 1921.

——	Date of Opening.	Date of Dissolution.
First Parliament	29th April, 1901	23rd November, 1903
Second ,,	2nd March, 1904	12th October, 1906
Third ,,	20th February, 1907	19th February, 1910
Fourth ,,	1st July, 1910	23rd April, 1913
Fifth ,,	9th July, 1913	30th July, 1914*
Sixth ,,	8th October, 1914	26th March, 1917
Seventh ,,	14th June, 1917	3rd November, 1919
Eighth ,,	26th February, 1920	—

* On this occasion, the Governor-General, acting on the advice of the Ministry, and under section 57 of the Constitution, granted a dissolution of both the Senate and the House of Representatives, this being the first occasion since Federation on which a dissolution of both Houses had occurred.

The Debates of the first seven Parliaments will be found in Volumes I. to XC. of the Parliamentary Debates.

2. **The Several Administrations.**—The following tabular statements shew the names of the several Governors-General, and the constitution of the Ministries which have directed the administration of the affairs of the Commonwealth since its creation :—

(a) GOVERNORS-GENERAL.

Rt. Hon. EARL OF HOPETOUN (afterwards MARQUIS OF LINLITHGOW), P.C., K.T., G.C.M.G., G.C.V.O. Sworn 1st January, 1901 ; recalled 9th May, 1902.

Rt. Hon. HALLAM BARON TENNYSON, G.C.M.G. (Act. Governor-General). Sworn 17th July, 1902.

Rt. Hon. HALLAM BARON TENNYSON, G.C.M.G. (Governor-General). Sworn 9th January, 1903; recalled 21st January, 1904.

Rt. Hon. HENRY STAFFORD BARON NORTHCOTE, P.C., G.C.M.G., G.C.I.E., C.B. Sworn 21st January, 1904 ; recalled 8th September, 1908.

Rt. Hon. WILLIAM HUMBLE EARL OF DUDLEY, P.C., G.C.M.G., G.C.V.O., etc. Sworn 9th September, 1908 ; recalled 31st July, 1911.

Rt. Hon. THOMAS BARON DENMAN, P.C., G.C.M.G., K.C.V.O. Sworn 31st July, 1911 ; recalled 16th May, 1914.

Rt. Hon. SIR RONALD CRAUFURD MUNRO FERGUSON (afterwards VISCOUNT NOVAR OF RAITH), P.C., G.C.M.G. Sworn 18th May, 1914 ; recalled 5th October, 1920.

Rt. Hon. HENRY WILLIAM BARON FORSTER OF LEPE, P.C., G.C.M.G. Sworn 6th October, 1920.

(b) BARTON ADMINISTRATION, 1st January, 1901, to 23rd September, 1903.

DEPARTMENTS.	MINISTERS.
External Affairs	Rt. Hon. SIR EDMUND BARTON, P.C., G.C.M.G., K.C.
Attorney-General	Hon. ALFRED DEAKIN.
Home Affairs	Hon. SIR WILLIAM JOHN LYNE, K.C.M.G. (to 7/8/'03). Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (from 7/8/'03).*
Treasurer	Rt. Hon. SIR GEORGE TURNER, P.C., K.C.M.G.
Trade and Customs	Rt. Hon. CHARLES CAMERON KINGSTON, P.C., K.C. (resigned 24/7/'03). Hon. SIR WILLIAM JOHN LYNE, K.C.M.G. (from 7/8/'03).
Defence	Hon. SIR JAMES ROBERT DICKSON, K.C.M.G. (died 10/1/'01). Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (17/1/'01 to 7/8/'03). Hon. JAMES GEORGE DRAKE (from 7/9/'03).
Postmaster-General	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (to 17/1/'01).* Hon. JAMES GEORGE DRAKE (5/2/'01 to 7/8/'03). Hon. SIR PHILIP OAKLEY FYSH, K.C.M.G. (from 7/8/'03).
Vice-President Executive Council	Hon. RICHARD EDWARD O'CONNOR, K.C.
Without Portfolio	Hon. N. E. LEWIS (to 23/4/'01).† Hon. SIR PHILIP OAKLEY FYSH, K.C.M.G. (26/4/'01 to 7/8/'03).

(c) FIRST DEAKIN ADMINISTRATION, 23rd September, 1903, to 26th April, 1904.

DEPARTMENTS.	MINISTERS.
External Affairs	Hon. ALFRED DEAKIN.
Trade and Customs	Hon. SIR WILLIAM JOHN LYNE, K.C.M.G.
Treasurer	Rt. Hon. SIR GEORGE TURNER, P.C., K.C.M.G.
Home Affairs	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.*
Attorney-General	Hon. JAMES GEORGE DRAKE.
Postmaster-General	Hon. SIR PHILIP OAKLEY FYSH, K.C.M.G.
Defence	Hon. AUSTIN CHAPMAN.
Vice-President Executive Council	Hon. THOMAS PLAYFORD.

(d) WATSON ADMINISTRATION, 26th April to 17th August, 1904.

DEPARTMENTS.	MINISTERS.
Treasurer	Hon. JOHN CHRISTIAN WATSON.
External Affairs	Hon. WILLIAM MORRIS HUGHES.‡
Attorney-General	Hon. HENRY BOURNES HIGGINS, K.C
Home Affairs	Hon. EGERTON LEE BATCHELOR.
Trade and Customs	Hon. ANDREW FISHER.§
Defence	Hon. ANDERSON DAWSON.
Postmaster-General	Hon. HUGH MAHON.
Vice-President Executive Council	Hon. GREGOR MCGREGOR.

* Created Lord Forrest of Bunbury, 1918. † K.C.M.G., 1902. ‡ P.C., 1916. § P.C., 1911.

(e) REID-MCLEAN ADMINISTRATION, 17th August, 1904, to 4th July, 1905.

DEPARTMENTS.	MINISTERS.
External Affairs	Rt. Hon. GEORGE HOUSTOUN REID, P.C., K.C.*
Trade and Customs	Hon. ALLAN MCLEAN.
Attorney-General	Hon. SIR JOSIAH HENRY SYMON, K.C.M.G., K.C.
Treasurer	Rt. Hon. SIR GEORGE TURNER, P.C., K.C.M.G.
Home Affairs	*Hon. DUGALD THOMSON.*
Defence	Hon. JAMES WHITESIDE MCCAY.†
Postmaster-General	Hon. SYDNEY SMITH.
Vice-President Executive Council	Hon. JAMES GEORGE DRAKE.

(f) SECOND DEAKIN ADMINISTRATION, 4th July, 1905, to 12th November, 1908.

DEPARTMENTS.	MINISTERS.
External Affairs	Hon. ALFRED DEAKIN.
Attorney-General	Hon. ISAAC ALFRED ISAACS, K.C. (to 12/10/'06). *Hon. LITTLETON ERNEST GROOM (from 12/10/'06).*
Trade and Customs	Hon. SIR WILLIAM JOHN LYNE, K.C.M.G. (to 30/7/'07). Hon. AUSTIN CHAPMAN (from 30/7/'07).
Treasurer	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (to 30/7/'07).‡ Hon. SIR WILLIAM JOHN LYNE (from 30/7/'07).
Postmaster-General	Hon. AUSTIN CHAPMAN (to 30/7/'07). Hon. SAMUEL MAUGER (from 30/7/'07).
Defence	Hon. THOMAS PLAYFORD (to 24/1/'07). Hon. THOMAS THOMSON EWING (from 24/1/'07).§
Home Affairs	Hon. LITTLETON ERNEST GROOM (to 12/10/'06). Hon. THOMAS THOMSON EWING (from 12/10/'06 to 24/1/'07).§ Hon. JOHN HENRY KEATING (from 24/1/'07).
Vice-President Executive Council	Hon. THOMAS THOMSON EWING (to 12/10/'06).§ Hon. JOHN HENRY KEATING (from 12/10/'06 to 20/2/'07). Hon. ROBERT WALLACE BEST (from 20/2/'07).§
Honorary Ministers	*Hon. J. H. KEATING (from 5/7/'05 to 12/10/'06).* Hon. S. MAUGER (from 12/10/'06 to 30/7/'07). Hon. J. HUME COOK (from 28/1/'08).

(g) FIRST FISHER ADMINISTRATION, 12th November, 1908, to 2nd June, 1909.

DEPARTMENTS.	MINISTERS.
Treasurer	Hon. ANDREW FISHER.‖
Attorney-General	Hon. WILLIAM MORRIS HUGHES.¶
External Affairs	Hon. EGERTON LEE BATCHELOR.
Home Affairs	Hon. HUGH MAHON.
Postmaster-General	Hon. JOSIAH THOMAS.
Defence	Hon. GEORGE FOSTER PEARCE.
Trade and Customs	Hon. FRANK GWYNNE TUDOR.
Vice-President Executive Council	Hon. GREGOR MCGREGOR.
Honorary Minister	Hon. JAMES HUTCHISON.

(h) THIRD DEAKIN ADMINISTRATION, 2nd June, 1909, to 29th April, 1910.

DEPARTMENTS.	MINISTERS.
Prime Minister (without Portfolio)	Hon. ALFRED DEAKIN.
Defence	Hon. JOSEPH COOK.**
Treasurer	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.‡
Trade and Customs	Hon. SIR ROBERT WALLACE BEST, K.C.M.G.
External Affairs	Hon. LITTLETON ERNEST GROOM.
Attorney-General	Hon. PATRICK MCMAHON GLYNN.
Postmaster-General	Hon. SIR JOHN QUICK.
Home Affairs	*Hon. GEORGE WARBURTON FULLER.*
Vice-President Executive Council	Hon. EDWARD DAVIS MILLEN.
Honorary Minister	Colonel The Hon. JUSTIN FOX GREENLAW FOXTON, C.M.G.

* K.C.M.G., 1909; G.C.M.G., 1911; G.C.B., 1916. † K.C.M.G., 1918. ‡ Created Lord Forrest of Bunbury, 1918. § K.C.M.G., 1908. ‖ P.C., 1911. ¶ P.C., 1916. ** P.C., 1914; G.C.M.G., 1918.

(i) SECOND FISHER ADMINISTRATION, 29th April, 1910, to 24th June, 1913.

DEPARTMENTS.	MINISTERS.
Treasurer	Hon. ANDREW FISHER.*
Attorney-General	Hon. WILLIAM MORRIS HUGHES.†
External Affairs	Hon. EGERTON LEE BATCHELOR (died Oct., 1911). Hon. JOSIAH THOMAS (from 14/10/11).
Postmaster-General	Hon. JOSIAH THOMAS (to 14/10/11). Hon. CHARLES EDWARD FRAZER (from 14/10/11).
Defence	Hon. GEORGE FOSTER PEARCE.
Trade and Customs	Hon. FRANK GWYNNE TUDOR.
Home Affairs	Hon. KING O'MALLEY.
Vice-President Executive Council	Hon. GREGOR MCGREGOR.
Honorary Ministers	Hon. EDWARD FINDLEY. Hon. CHARLES EDWARD FRAZER (to 14/10/11). Hon. ERNEST ALFRED ROBERTS (from 23/10/11).

(j) COOK ADMINISTRATION, 24th June, 1913, to 17th September, 1914.

DEPARTMENTS.	MINISTERS.
Home Affairs	Hon. JOSEPH COOK.‡
Treasurer	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.§
Attorney-General	Hon. WILLIAM HILL IRVINE, K.C.‖
Defence	Hon. EDWARD DAVIS MILLEN.
External Affairs	Hon. PATRICK MCMAHON GLYNN, K.C.
Trade and Customs	Hon. LITTLETON ERNEST GROOM.
Postmaster-General	Hon. AGAR WYNNE.
Vice-President Executive Council	Hon. JAMES HIERS MCCOLL.
Honorary Ministers	Hon. JOHN SINGLETON CLEMONS. Hon. WILLIAM HENRY KELLY.

(k) THIRD FISHER ADMINISTRATION, 17th September, 1914, to 27th October, 1915.

DEPARTMENTS.	MINISTERS.
Treasurer	Rt. Hon. ANDREW FISHER, P.C.
Attorney-General	Hon. WILLIAM MORRIS HUGHES.†
Defence	Hon. GEORGE FOSTER PEARCE.
Trade and Customs	Hon. FRANK GWYNNE TUDOR.
External Affairs	Hon. JOHN ANDREW ARTHUR (died December, 1914). Hon. HUGH MAHON (from 14/12/14).
Home Affairs	Hon. WILLIAM OLIVER ARCHIBALD.
Postmaster-General	Hon. WILLIAM GUTHRIE SPENCE.
Minister for the Navy	Hon. JENS AUGUST JENSEN (from 12/7/15).
Vice-President Executive Council	Hon. ALBERT GARDINER.
Assistant Ministers	Hon. HUGH MAHON (to 14/12/14). Hon. JENS AUGUST JENSEN (to 12/7/15). Hon. EDWARD JOHN RUSSELL.

(l) FIRST HUGHES ADMINISTRATION from 27th October, 1915, to 14th Nov., 1916.

DEPARTMENTS.	MINISTERS.
Prime Minister and Attorney-General	Hon. WILLIAM MORRIS HUGHES.†
Defence	Hon. GEORGE FOSTER PEARCE.
Trade and Customs	Hon. FRANK GWYNNE TUDOR (to 14/9/16). Hon. WILLIAM MORRIS HUGHES (from 29/9/16).
Treasurer	Hon. WILLIAM GUY HIGGS.¶
Minister for the Navy	Hon. JENS AUGUST JENSEN.
Home Affairs	Hon. KING O'MALLEY.
External Affairs	Hon. HUGH MAHON.
Postmaster-General	Hon. WILLIAM WEBSTER.
Vice-President Executive Council	Hon. ALBERT GARDINER.¶
Assistant Minister	Hon. EDWARD JOHN RUSSELL.¶

* P.C., 1911. † P.C., 1916. ‡ P.C., 1914; G.C.M.G., 1918. § Created Lord Forrest of Bunbury, 1918. ‖ K.C.M.G., 1914. ¶ Resigned 27/10/16.

(*m*) SECOND HUGHES ADMINISTRATION from 14th Nov., 1916, to 17th Feb., 1917.

DEPARTMENTS.	MINISTERS.
Prime Minister and Attorney-General	Rt. Hon. WILLIAM MORRIS HUGHES, P.C.
Minister for Defence	Hon. GEORGE FOSTER PEARCE.
Minister for the Navy	Hon. JENS AUGUST JENSEN.
Postmaster-General	Hon. WILLIAM WEBSTER.
Treasurer	Hon. ALEXANDER POYNTON.
Minister for Trade and Customs ..	Hon. WILLIAM OLIVER ARCHIBALD.
Minister for Home Affairs ..	Hon. FREDERICK WILLIAM BAMFORD.
Minister for Works	Hon. PATRICK JOSEPH LYNCH.
Vice-President Executive Council	Hon. WILLIAM GUTHRIE SPENCE.
Assistant Ministers	Hon. EDWARD JOHN RUSSELL. Hon. WILLIAM HENRY LAIRD SMITH.

(*n*) AUSTRALIAN NATIONAL WAR GOVERNMENT from 17th February, 1917, to 8th January, 1918.

DEPARTMENTS.	MINISTERS.
Prime Minister and Attorney-General	Rt. Hon. WILLIAM MORRIS HUGHES, P.C.
Minister for the Navy	Rt. Hon. JOSEPH COOK, P.C.*
Treasurer	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.†
Minister for Defence	Hon. GEORGE FOSTER PEARCE.
Vice-President Executive Council	Hon. EDWARD DAVIS MILLEN. Hon. LITTLETON ERNEST GROOM (from 16/11/17).
Minister for Repatriation ..	Hon. EDWARD DAVIS MILLEN (from 28/9/17).
Minister for Works and Railways	Hon. WILLIAM ALEXANDER WATT.‡
Minister for Home and Territories	Hon. PATRICK McMAHON GLYNN, K.C.
Minister for Trade and Customs ..	Hon. JENS AUGUST JENSEN.
Postmaster-General	Hon. WILLIAM WEBSTER.
Honorary Ministers	Hon. LITTLETON ERNEST GROOM. Hon. EDWARD JOHN RUSSELL.

(*o*) AUSTRALIAN NATIONAL WAR GOVERNMENT from 10th January, 1918.

DEPARTMENTS.	MINISTERS.
Prime Minister and Attorney-General	Rt. Hon. WILLIAM MORRIS HUGHES, P.C., K.C.
Minister for the Navy	Rt. Hon. JOSEPH COOK, P.C.* (to 28/7/20). Hon. WILLIAM HENRY LAIRD SMITH (from 28/7/20).
Treasurer	Rt. Hon. LORD FORREST, P.C., G.C.M.G. (to 27/3/18; died 4th September, 1918). *Hon. WILLIAM ALEXANDER WATT‡ (from 27/3/18; resigned 15/6/20).* Rt. Hon. JOSEPH COOK, P.C.* (from 28/7/20).
Minister for Defence	Hon. GEORGE FOSTER PEARCE.
Minister for Repatriation ..	Hon. EDWARD DAVIS MILLEN.
Minister for Works and Railways	Hon. WILLIAM ALEXANDER WATT.‡ Hon. LITTLETON ERNEST GROOM (from 27/3/18).
Minister for Home and Territories	Hon. PATRICK McMAHON GLYNN, K.C. (to 3/2/20). Hon. ALEXANDER POYNTON (from 4/2/20).
Minister for Trade and Customs ..	Hon. JENS AUGUST JENSEN (to 13/12/18). Hon. WILLIAM ALEXANDER WATT‡ (from 13/12/18). Hon. WALTER MASSY GREENE (from 17/1/19).
Postmaster-General	Hon. WILLIAM WEBSTER (to 3/2/20). Hon. GEORGE HENRY WISE (from 4/2/20).
Minister for Health	Hon. WALTER MASSY GREENE (from 10/3/21).
Vice-President Executive Council	Hon. LITTLETON ERNEST GROOM. Hon. EDWARD JOHN RUSSELL (from 27/3/18).
Honorary Ministers	Hon. EDWARD JOHN RUSSELL (to 27/3/18). Hon. ALEXANDER POYNTON (from 26/3/18 to 4/2/18). Hon. GEORGE HENRY WISE (from 26/3/18 to 4/2/18). Hon. WALTER MASSY GREENE (from 26/3/18 to 17/1/19). Hon. RICHARD BEAUMONT ORCHARD (from 26/3/18 to 31/1/19). Hon. SIR GRANVILLE DE RYRIE, K.C.M.G., C.B., V.D. (from 4/2/20). Hon. WILLIAM HENRY LAIRD SMITH (from 4/2/20 to 28/7/20). Hon. ARTHUR STANISLAUS ROGERS (from 28/7/20).

* G.C.M.G., 1918. † Created Lord Forrest of Bunbury, 1918. ‡ P.C., 1920.

A further list of the Ministers of State for the Commonwealth, arranged according to the respective offices occupied, is given in the section of this book dealing with the subject of General Government (see Section XXV.).

3. **The Course of Legislation.**—The actual legislation by the Commonwealth Parliament up to the end of the 1919 session is indicated in alphabetical order in "Vol. XVIII. of the Acts of the Parliament of the Commonwealth of Australia passed in the session of 1920, with Tables, Appendix and Indexes." A "Chronological Table of Acts passed from 1901 to 1920, shewing how they are affected by subsequent legislation or lapse of time" is also given, and further "A Table of Commonwealth Legislation," for the same period, "in relation to the several provisions of the Constitution," is furnished. *Reference may be made to these for complete information.* The nature of Commonwealth legislation, up to December, 1920, and its relation to the several provisions of the Constitution, are set forth in the following tabular statement :—

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION FROM 1901 to DECEMBER, 1920, IN RELATION TO THE SEVERAL PROVISIONS OF THE CONSTITUTION.†

Section of Constitution.	Short Title of Commonwealth Act.*
	AMENDMENT OF THE CONSTITUTION.
	Constitution Alteration (Senate Elections) 1906.
	Constitution Alteration (State Debts) 1909.
	PARLIAMENTARY AND ELECTORAL LAW.
8—30	PARLIAMENTARY FRANCHISE—
	*Commonwealth Franchise Act 1902.**
	*Commonwealth Electoral (War-time) Act 1917–1919.**
	Commonwealth Electoral Act 1918–1919.
9—34	ELECTIONS—
	Commonwealth Electoral Act 1902–1911.‡
	Senate Elections Act 1903.
	*Commonwealth Electoral (War-time) Act 1917–1919.**
	Commonwealth Electoral Act 1918–1919.
24	DETERMINATION OF NUMBER OF MEMBERS OF HOUSE OF REPRESENTATIVES—
	Representation Act 1905.
	Representation Act 1916.
47	DISPUTED ELECTIONS AND QUALIFICATIONS—
	*Commonwealth Electoral Act 1902–1911, Part XVI.**‡
	*Disputed Elections and Qualifications Act 1907.**
	Commonwealth Electoral Act 1918–1919, ss. 183–201.
48	ALLOWANCES TO MEMBERS—
	*Parliamentary Allowances Act 1902.**
	*Parliamentary Allowances Act 1907.**
	Parliamentary Allowances Act 1920.
49	PRIVILEGES OF PARLIAMENT—
	Parliamentary Papers Act 1908.
	GENERAL LEGISLATION.
51—(i)	TRADE AND COMMERCE—EXTERNAL AND INTERSTATE—
	Sea Carriage of Goods Act 1904 [*Bills of Lading*].
	Secret Commissions Act 1905.
	Commerce (Trade Descriptions) Act 1905 [*Merchandise Marks*].
	Australian Industries Preservation Act 1906–1910 [*Trusts and Dumping*].
	Spirits Act 1906–1918.
	*Seamen's Compensation Act 1909.**
	Customs (Inter-State Accounts) Act 1910.

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

† This table has been prepared by Sir Robert Garran, Solicitor-General to the Commonwealth.

‡ With the exception of s. 210 of the *Commonwealth Electoral Act* 1902, and s. 18 of the *Commonwealth Electoral Act* 1905, the *Commonwealth Electoral Act* 1902–1911 has been repealed by the *Commonwealth Electoral Act* 1918. See *Gazette*, 25th November, 1918, p. 2257, *Gazette*, 21st March, 1919, p. 401, and *Gazette*, 14th December, 1920, p. 2277.

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued.*

Section of Constitution.	Short Title of Commonwealth Act.*
	GENERAL LEGISLATION—*continued.*
51 (i)	TRADE AND COMMERCE—EXTERNAL AND INTERSTATE—*continued.*
	Northern Territory Acceptance Act 1910–1919 (s. 13).
	Seamen's Compensation Act 1911.
	Navigation Act 1912–1919.
	Norfolk Island Act 1913 (s. 15).
	Trading with the Enemy Act 1914–1916.
	*Meat Export Trade Commission Act 1914.**
	Enemy Contracts Annulment Act 1915.
	Freight Arrangements Act 1915–1917.
	River Murray Waters Act 1915–1920.
	Sugar Purchase Act 1915–1917.
	Butter Agreement Act 1920.
	War Precautions Act Repeal Act 1920.
(ii)	TAXATION—
	Machinery Acts—
	Customs Act 1901–1920.
	Beer Excise Act 1901–1918.
	Distillation Act 1901–1918.
	Excise Act 1901–1918.
	Spirits Act 1906–1918.
	Excise Procedure Act 1907.
	Land Tax Assessment Act 1910–1916.
	Estate Duty Assessment Act 1914–1916.
	Income Tax Assessment Act 1915–1918.
	Entertainments Tax Assessment Act 1916.
	*War-time Profits Tax Assessment Act 1917–1918.**
	Taxing Acts—
	Customs Tariff 1902.
	*Customs Tariff 1906 [Agricultural Machinery].**
	Customs Tariff (South African Preference) 1906; *amended by* Customs Tariff 1908 (s. 9).
	Customs Tariff 1908; *amended by* Customs Tariff Amendment 1908, and Customs Tariff 1910, and Customs Tariff 1911.
	Excise Tariff 1902; *amended by* Sugar Rebate Abolition Act 1903, *Excise Tariff 1905,** *Excise Tariff (Amendment) 1906,** Excise Tariff 1908; and *Excise (Sugar) Act 1910.**
	Excise Tariff 1906 [*Agricultural Machinery*]; 1906 [*Spirits*].
	Excise Tariff 1908; *amended by* Excise Tariff (Starch) 1908.
	Bank Notes Tax Act 1910.
	Land Tax Act 1910–1918.
	Sugar Excise Repeal Act 1912.
	*Excise Tariff 1913.**
	Estate Duty Act 1914.
	Income Tax Acts 1915.
	Income Tax Act 1916.
	Entertainments Tax Act 1916–1919.
	Customs Tariff Validation Act 1917.
	Excise Tariff Validation Act 1917.
	War-time Profits Tax Act 1917.
	Income Tax Act 1917.
	Income Tax Act 1918.
	Income Tax Act 1919.
	Land Tax Act 1919.
	Customs Tariff Validation Act 1919.
	Excise Tariff Validation Act 1919.
	Income Tax Act 1920.
	Land Tax Act 1920.

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued.*

Section of Constitution.	Short Title of Commonwealth Act.*
	GENERAL LEGISLATION—*continued.*
51 (iii)	BOUNTIES ON PRODUCTION OR EXPORT—
	Sugar Bounty Acts 1903, 1905,* 1910,* 1912.**
	Bounties Act 1907–1912.
	*Manufactures Encouragement Act 1908–1911.**
	*Shale Oil Bounties Act 1910.**
	Sugar Bounty Abolition Act 1912.
	Wood Pulp and Rock Phosphate Bounties Act 1912–1917.
	*Sugar Bounty Act 1913.**
	Iron Bounty Act 1914–1915.
	Shale Oil Bounty Act 1917.
	*Apple Bounty Act 1918.**
	Iron and Steel Bounty Act 1918.
(iv)	BORROWING MONEY ON THE PUBLIC CREDIT OF THE COMMONWEALTH—
	Commonwealth Inscribed Stock Act 1911–1918. Loan Act 1911–1914, 1912–1914, 1913–1914, 1914, 1915, 1918, 1919, 1920.
	Commonwealth Bank Act 1911–1920.
	*Naval Loan Act 1909.**
	Naval Loan Repeal Act 1910.
	Treasury Bills Act 1914–1915.
	War Loan (United Kingdom) Act 1914–1917.
	War Loan Act (No. 1) 1915.
	War Loan (United Kingdom) Act 1915–1917.
	War Loan Act (No. 3) 1915.
	Sugar Purchase Act 1915–1920.
	Freight Arrangements Act 1915–1917.
	States Loan Act 1916.
	War Loan Act (No. 1) 1916.
	War Loan Act (United Kingdom, No. 2) 1916.
	States Loan Act 1917.
	War Loan Act 1917.
	Loans Sinking Fund Act 1918.
	War Loan Act 1918.
	War Loan Securities Repurchase Act 1918.
	Tasmanian Loan Redemption Act 1919.
	Loans Securities Act 1919.
	War Gratuity Acts 1920.
	Loan Act 1920.
	War Loan Act 1920.
	War Precautions Act Repeal Act 1920.
(v)	POSTAL, TELEGRAPHIC, AND TELEPHONIC SERVICES—
	Post and Telegraph Act 1901–1916.
	Post and Telegraph Rates Act 1902–1920.
	Wireless Telegraphy Act 1905–1919.
	Tasmanian Cable Rates Act 1906.
	Telegraph Act 1909.
	Postal Rates Act 1910.
	Purchase Telephone Lines Acquisition Act 1911.
	Pacific Cable Act 1911.
(vi)	NAVAL AND MILITARY DEFENCE—
	General—
	Naval Agreement Act 1903–1912.
	*Naval Loan Act 1909.**
	Naval Loan Repeal Act 1910.
	Defence Act 1903–1918.
	Telegraph Act 1909.
	Naval Defence Act 1910–1918.
	Defence Lands Purchase Act 1913.
	Control of Naval Waters Act 1918.
	Deceased Soldiers' Estates Act 1918–1919.

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued.*

Section of Constitution.	Short Title of Commonwealth Act.*
	GENERAL LEGISLATION—*continued.*
51 (vi)	NAVAL AND MILITARY DEFENCE—*continued.*
	War Legislation—
	Patents, Trade Marks and Designs Act 1914–1915.
	Trading with the Enemy Act 1914–1916.
	*War Precautions Act 1914–1918.**
	War Census Act 1915–1916.
	Enemy Contracts Annulment Act 1915.
	*War Pensions Act 1914–1916.**
	*Australian Soldiers' Repatriation Fund Act 1916.**
	Military Service Referendum Act 1916.
	*Daylight Saving Act 1916.**
	Patents Act (Partial Suspension) Act 1916.
	Unlawful Associations Act 1916–1917.
	Wheat Storage Act 1917.
	Daylight Saving Repeal Act 1917.
	*Australian Soldiers' Repatriation Act 1917–1918.**
	Defence (Civil Employment) Act 1918.
	War Service Homes Act 1918–1920.
	*Commercial Activities Act 1919.**
	Moratorium Act 1919.
	Treaty of Peace Act 1919.
	Termination of the Present War (Definition) Act 1919.
	*Land, Mining, Shares and Shipping Act 1919.**
	Legal Proceedings Control Act 1919.
	War Gratuity Acts 1920.
	Australian Imperial Force Canteens Fund Act 1920.
	Australian Soldiers' Repatriation Act 1920.
	Treaty of Peace (Germany) Act 1920.
	Treaties of Peace (Austria and Bulgaria) Act 1920.
	War Precautions Act Repeal Act 1920.
(vii)	LIGHTHOUSES, LIGHTSHIPS, BEACONS AND BUOYS—
	Lighthouses Act 1911–1919.
(viii)	ASTRONOMICAL AND METEOROLOGICAL OBSERVATIONS—
	Meteorology Act 1906.
(ix)	QUARANTINE—
	Quarantine Act 1908–1920.
(xi)	CENSUS AND STATISTICS—
	Census and Statistics Act 1905–1920.
	War Census Act 1915–1916.
(xii)	CURRENCY, COINAGE, AND LEGAL TENDER—
	Coinage Act 1909.
	*Australian Notes Act 1910–1914.**
	Commonwealth Bank Act 1911–1920.
(xiii)	BANKING, OTHER THAN STATE BANKING, ETC.—
	Commonwealth Bank Act 1911–1920.
(xiv)	INSURANCE—
	Life Assurance Companies Act 1905.
	Marine Insurance Act 1909.
(xvi)	BILLS OF EXCHANGE AND PROMISSORY NOTES—
	Bills of Exchange Act 1909–1912.
(xviii)	COPYRIGHT, PATENTS, DESIGNS, AND TRADE MARKS—
	Customs Act 1901–1916 (s. 52 (a), 57).
	Patents Act 1903–1909.
	Trade Marks Act 1905–1919.
	*Copyright Act 1905.**
	Designs Act 1906–1912.
	Patents, Trade Marks and Designs Act 1910.
	Copyright Act 1912.
	Patents, Trade Marks and Designs Act 1914–1915.
	Patents Act (Partial Suspension) Act 1916.

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

ANALYTICAL TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued.*

Section of Constitution.	Short Title of Commonwealth Act.*
	GENERAL LEGISLATION—*continued.*
51 (xix)	NATURALIZATION AND ALIENS—
	*Naturalization Act 1903–1917.**
	Immigration Act 1901–1920.
	Nationality Act 1920.
	Aliens Registration Act 1920.
	War Precautions Act Repeal Act 1920.
(xxii)	MARRIAGE AND DIVORCE—
	Matrimonial Causes (Expeditionary Forces) Act 1919.
(xxiii)	INVALID AND OLD-AGE PENSIONS—
	Invalid and Old-age Pensions Act 1908–1920.
(xxiv)	SERVICE AND EXECUTION THROUGHOUT COMMONWEALTH OF PROCESS AND JUDGMENTS OF STATE COURTS—
	*Service and Execution of Process Act 1905.**
	Service and Execution of Process Act 1901–1918.
(xxv)	RECOGNITION OF STATE LAWS, RECORDS, ETC.—
	State Laws and Records Recognition Act 1901.
(xxvi)	PEOPLE OF ANY RACE, OTHER THAN ABORIGINAL—SPECIAL LAWS—
	Pacific Island Labourers Act 1901–1906.
	Commonwealth Franchise Act 1902 (s. 4).*
	*Naturalization Act 1903–1917 (s. 5).**
	Commonwealth Electoral Act 1918–1919 (s. 39).
(xxvii)	IMMIGRATION AND EMIGRATION—
	Immigration Act 1901–1920.
	Pacific Island Labourers Act 1901–1906.
	Contract Immigrants Act 1905. Emigration Act 1910.
	Passports Act 1920.
	War Precautions Act Repeal Act 1920.
(xxviii)	INFLUX OF CRIMINALS—
	Immigration Act 1901–1920 (s. 3 (ga), (gb)).
(xxix)	EXTERNAL AFFAIRS—
	Extradition Act 1903. High Commissioner Act 1909.
(xxx)	RELATIONS WITH PACIFIC ISLANDS—
	Pacific Island Labourers Act 1901–1906.
	Nauru Island Agreement Act 1919.
	New Guinea Act 1920.
(xxxi)	ACQUISITION OF PROPERTY FOR PUBLIC PURPOSES—
	*Property for Public Purposes Acquisition Act 1901.**
	*Seat of Government Act 1904.**
	Lands Acquisition Act 1906–1916.
	Lands Acquisition Act 1912.
	Seat of Government Act 1908.
	Seat of Government Acceptance Act 1909.
	Seat of Government (Administration) Act 1910 (s. 10).
	Northern Territory (Administration) Act 1910.
	Defence Lands Purchase Act 1913.
	Purchase Telephone Lines Acquisition Act 1911.
	Kalgoorlie to Port Augusta Railway Lands Act 1918–1920.
	Lands Acquisition (Defence) Act 1918.
	War Service Homes Act 1918–1920 (s. 16).
(xxxii)	CONTROL OF RAILWAYS FOR DEFENCE PURPOSES—
	Defence Act 1903–1918 (ss. 64–66, 80, 124).
	*War Precautions Act 1914–1918 (s. 4 (1) (c)).**
(xxxiv)	RAILWAY CONSTRUCTION AND EXTENSION IN ANY STATE WITH THE CONSENT OF THAT STATE—
	Kalgoorlie to Port Augusta Railway Act 1911–1912.
	Commonwealth Railways Act 1917.
(xxxv)	CONCILIATION AND ARBITRATION FOR THE PREVENTION AND SETTLEMENT OF INDUSTRIAL DISPUTES EXTENDING BEYOND THE LIMITS OF ANY ONE STATE—
	Commonwealth Conciliation and Arbitration Act 1904–1918.
	Industrial Peace Acts 1920.
	Arbitration (Public Service) Act 1920.

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued*.

Section of Constitution.	Short Title of Commonwealth Act.*
	GENERAL LEGISLATION—*continued*.
51 (xxxix)	MATTERS INCIDENTAL TO THE EXECUTION OF POWERS—
	Acts Interpretation Act 1901–1918.
	*Punishment of Offences Act 1901.**
	Acts Interpretation Act 1904–1916.
	Amendments Incorporation Act 1905–1918.
	Rules Publication Act 1903–1916.
	Commonwealth Public Service Act 1902–1918.
	Jury Exemption Act 1905.
	Royal Commissions Act 1902–1912.
	Evidence Act 1905.
	Commonwealth Salaries Act 1907.
	Excise Procedure Act 1907.
	Statutory Declarations Act 1911.
	Arbitration (Public Service) Act 1911.
	Commonwealth Inscribed Stock Act 1911–1918.
	Maternity Allowance Act 1912.
	Commonwealth Workmen's Compensation Act 1912.
	Committee of Public Accounts Act 1913–1920.
	Commonwealth Public Works Committee Act 1913–1914.
	*Meat Export Trade Commission Act 1914.**
	Crimes Act 1914–1915.
	Commonwealth Public Service (Acting Commissioner) Act 1916.
	Solicitor-General Act 1916.
	Commonwealth Public Works Committee Act 1917.
	Committee of Public Accounts Act 1917.
	Australian Soldiers' Repatriation Act 1917–1918.
	Sugar Industry Commission Act 1919.
	Arbitration (Public Service) Act 1920.
	Institute of Science and Industry Act 1920.
	Westralian Farmers Agreement Act 1920.
	Air Navigation Act 1920.
	War Precautions Act Repeal Act 1920.
	EXECUTIVE GOVERNMENT.
65	NUMBER OF MINISTERS—
	*Ministers of State Act 1915.**
	Ministers of State Act 1917.
67	APPOINTMENT AND REMOVAL OF OFFICERS—
	Commonwealth Public Service Act 1902–1918.
	Papua Act 1905–1920 (s. 19).
	Defence Act 1903–1918 (s. 63).
	High Commissioner Act 1909 (ss. 8, 9).
	Northern Territory Acceptance Act 1910–1919 (ss. 11, 12).
	Norfolk Island Act 1913 (ss. 7, 9).
	Commonwealth Public Service (Acting Commissioner) Act 1916.
	Solicitor-General Act 1916.
	Commonwealth Railways Act 1917 (ss. 5–15, 46–54).
	Defence (Civil Employment) Act 1918.
	War Service Homes Act 1918–1920, ss. 5–15.
	Institute of Science and Industry Act 1920.
	THE JUDICATURE.
71—80	CONSTITUTION AND PROCEDURE OF THE HIGH COURT—
	Judiciary Act 1903–1920.
	High Court Procedure Act 1903–1915.
73	APPELLATE JURISDICTION OF THE HIGH COURT—
	Judiciary Act 1903–1920.
	Papua Act 1905–1920 (s. 43).
	Inter-State Commission Act 1912 (s. 42).
	Land Tax Assessment Act 1910–1916 (s. 46).
	Norfolk Island Act 1913 (s. 11).
	Estate Duty Assessment Act 1914–1916 (s. 28).
	Income Tax Assessment Act 1915–1918 (s. 37).
	War-time Profits Tax Assessment Act 1917–1918 (s. 29).

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued.*

Section of Constitution.	Short Title of Commonwealth Act.*
	THE JUDICATURE—*continued.*
76	ORIGINAL JURISDICTION OF HIGH COURT—
(i)	(1) *In matters arising under the Constitution or involving its interpretation*—
	Judiciary Act 1903–1920 (ss. 23, 30).
(ii)	(2) *In matters arising under Laws made by the Parliament*—
	Customs Act 1901–1920 (ss. 221, 227, 245).
	Excise Act 1901–1918 (ss. 109, 115, 134).
	Post and Telegraph Act 1901–1916 (ss. 29, 43).
	Property for Public Purposes Acquisition Act 1901 (ss. 12–17, 25, 52, 55 (b), 58).*
	Commonwealth Electoral Act 1902–1911† (ss. 193, 206AA).
	Judiciary Act 1903–1920.
	Defence Act 1903–1918 (s. 91).
	Patents Act 1903–1909 (ss. 47, 58, 67, 75–77, 84–87A, 111)
	Commonwealth Conciliation and Arbitration Act 1904–1920 (s. 31).
	Trade Marks Act 1905–1919 (ss. 34, 35, 44, 45, 70–72, 95).
	Copyright Act 1905 (s. 73 (2)).*
	Copyright Act 1912 (s. 37 (2)).
	Australian Industries Preservation Act 1906–1910 (ss. 10, 11, 12, 21, 22, 26).
	Referendum (Constitution Alteration) Act 1906–1919 (ss. 27, 31).
	Lands Acquisition Act 1906–1916 (ss. 10, 11, 24, 36–39, 45, 46, 50, 54, 56, 59).
	Disputed Elections and Qualifications Act 1907 (ss. 2, 6).*
	Navigation Act 1912–1919 (ss. 383, 385).
	Trading with the Enemy Act 1914–1916 (ss. 9c, 9D).
	Commonwealth Electoral Act 1918–1919 (ss. 183, 202).
	Industrial Peace Acts 1920.
(iii)	(3) *In matters of Admiralty and Maritime Jurisdiction*—
	Judiciary Act 1903–1920 (ss. 30, 30A).
77 (ii),	EXCLUDING JURISDICTION OF STATE COURTS—
	Judiciary Act 1903–1920 (ss. 38, 38A, 39, 57, 59).
(iii)	INVESTING STATE COURTS WITH FEDERAL JURISDICTION—
	Customs Act 1901–1920 (ss. 221, 227, 245).
	Excise Act 1901–1918 (ss. 109, 115, 134).
	Post and Telegraph Act 1901–1916 (ss. 29, 43).
	*Punishment of Offences Act 1901.**
	Commonwealth Electoral Act 1902–1911† (s. 193).
	*Claims against the Commonwealth Act 1902.**
	Defence Act 1903–1918 (s. 91).
	Judiciary Act 1903–1920 (ss. 17, 39, 68).
	Patents Act 1903–1909 (ss. 30, 47, 58, 67, 75–77, 84–87A, 111).
	Commonwealth Conciliation and Arbitration Act 1904–1920 (ss. 44–46, 48).
	Trade Marks Act 1905–1919 (ss. 34, 35, 44, 45).
	Copyright Act 1905 (ss. 60, 73).*
	Designs Act 1906–1912 (s. 25, 39).
	Copyright Act 1912 (ss. 14–17).
	Land Tax Assessment Act 1910–1916 (s. 44).
	Navigation Act 1912–1919 (ss. 91, 92, 318–20, 380–3, 385, 395).
	Estate Duty Assessment Act 1914–1916 (s. 24).
	Income Tax Assessment Act 1915–1918 (s. 37).
	*War-time Profits Tax Assessment Act 1917–1918 (s. 28).**
78	RIGHT TO PROCEED AGAINST COMMONWEALTH OR STATE—
	Judiciary Act 1903–1920 (ss. 56–67).

* Acts whose short titles are printed in italics with a * have been repealed or have expired.
† See footnote ‡ at p. 31 *supra.*

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued.*

Section of Constitution.	Short Title of Commonwealth Act.*
	FINANCE.
81	APPROPRIATION OF MONEYS—
	Appropriation and Supply Acts 1901–1914.
	Audit Act 1901–1920 (ss. 36–37, 62a).
83	PAYMENT OF MONEYS—
	Audit Act 1901–1920 (ss. 31–37, 62a).
93	CREDITING OF REVENUE AND DEBITING OF EXPENDITURE—
	Surplus Revenue Acts 1908, 1909, 1910.
94	DISTRIBUTION OF SURPLUS REVENUE—
	Surplus Revenue Acts 1908, 1909, 1910.
96	ASSISTANCE TO STATES—
	Tasmania Grant Act 1912.
	Tasmania Grant Act 1913.
97	AUDIT OF PUBLIC ACCOUNTS—
	Audit Act 1901–1920.
98	NAVIGATION AND SHIPPING—
	Sea-Carriage of Goods Act 1904.
	Navigation Act 1912–1919.
	River Murray Waters Act 1915–1920.
100	USE OF WATERS—
	River Murray Waters Act 1915–1920.
101–104	INTER-STATE COMMISSION—
	Inter-State Commission Act 1912.
	THE STATES.
118	RECOGNITION OF STATE LAWS, RECORDS, ETC.—
	State Laws and Records Recognition Act 1901.
119	PROTECTION OF STATES FROM INVASION AND VIOLENCE—
	Defence Act 1903–1918 (s. 51).
	TERRITORIES.
122	GOVERNMENT OF TERRITORIES—
	Papua Act 1905.
	Wireless Telegraphy Act 1905–1919.
	Seat of Government Acceptance Act 1909.
	Patents Act 1903–1909 (s. 4a).
	Northern Territory Acceptance Act 1910–1919.
	Seat of Government (Administration) Act 1910.
	Northern Territory (Administration) Act 1910.
	Pine Creek to Katherine River Railway Survey Act 1912.
	Pine Creek to Katherine River Railway Act 1913.
	Norfolk Island Act 1913.
	Jervis Bay Territory Acceptance Act 1915.
	Nauru Island Agreement Act 1919.
	New Guinea Act 1920.
	MISCELLANEOUS.
125	SEAT OF GOVERNMENT—
	*Seat of Government Act 1904.**
	Seat of Government Act 1908.
	Seat of Government Acceptance Act 1909.
	Seat of Government (Administration) Act 1910.
128	ALTERATION OF CONSTITUTION—
	Referendum (Constitution Alteration) Act 1906–1919.
	Constitution Alteration (Senate Elections) Act 1906.
	Constitution Alteration (State Debts) Act 1909.
	*Compulsory Voting Act 1915.**

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

SECTION III.

PHYSIOGRAPHY.

§ 1. General Description of Australia.

1. **Geographical Position.**—The Australian Commonwealth, which includes the island continent of Australia proper and the island of Tasmania, is situated in the Southern Hemisphere, and comprises in all an area of about 2,974,581 square miles, the mainland alone containing about 2,948,366 square miles. Bounded on the west and east by the Indian and Pacific Oceans respectively, it lies between longitudes 113° 9′ E. and 153° 39′ E., while its northern and southern limits are the parallels of latitude 10° 41′ S. and 39° 8′ S., or, including Tasmania, 43° 39′ S. On its north are the Timor and Arafura Seas and Torres Strait, on its south the Southern Ocean and Bass Strait (*a*).

Tropical and Temperate Regions. Of the total area of Australia the lesser portion lies within the tropics. Assuming, as is usual, that the latitude of the Tropic of Capricorn is 23° 30′ S.,(*b*) the areas within the tropical and temperate zones are approximately as follows:—

AREAS OF TROPICAL AND TEMPERATE REGIONS

OF STATES AND TERRITORY WITHIN TROPICS.

Areas.	Queensland.	Western Australia.	Northern Territory.	Total.
	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.
Within Tropical Zone	359,000	364,000	426,320	1,149,320
Within Temperate Zone	311,500	611,920	97,300	1,020,720
Ratio of Tropical part to whole State ..	0.535	0.373	0.814	0.530
Ratio of Temperate part to whole State	0.465	0.627	0.186	0.470

Thus the tropical part is roughly about one-half (0.530) of the three territories mentioned above, or about five-thirteenths of the whole Commonwealth (0.386). See hereafter Meteorology—page 54.

2. **Area of Australia compared with that of other Countries.**—That the area of Australia is greater than that of the United States of America, that it is four-fifths of that of Canada, that it is nearly one-fourth of the area of the whole of the British Empire, that it is more than three-fourths of the whole area of Europe, that it is more than 25 times as large as any one of the following, viz., the United Kingdom, Hungary, Italy, the Transvaal, and Ecuador, are facts which are not always adequately realised. It is this great size, taken together with the fact of the limited population, that gives to the problems of Australian development their unique character, and its clear comprehension is essential in any attempt to understand those problems.

The relative magnitudes may be appreciated by a reference to the following table, which shows how large Australia is compared with the countries referred to, or *vice versa*. Thus, to take line 1, we see that Europe is about $1\frac{3}{10}$ times (1·29696) as large as Australia, or that Australia is about three-quarters (more accurately 0·77) of the area of Europe.

(*a*) The extreme points are "Steep Point" on the west, "Cape Byron" on the east, "Cape York" on the north, "Wilson's Promontory" on the south, or, if Tasmania be included, "South East Cape." The limits, according to the 1903–4 edition of "A Statistical Account of Australia and New Zealand," p. 2, and, according to Volume XXV. of the Encyclopædia Britannica, tenth edition, p. 787, are respectively 113° 5′ E., 153° 16′ E., 10° 39′ S., and 39° 11½′ S., but these figures are obviously defective. A similar inaccuracy appears in the XI. edition of the Encyclopædia.

(*b*) Its correct value for 1920 is 23° 26′ 58.89″, and it decreases about 0.47″ per annum.

AREA OF AUSTRALIA IN COMPARISON WITH THAT OF OTHER COUNTRIES.

Commonwealth of Australia .. .. 2,974,581 square miles.

Country.	Area.	Australian Commonwealth in comparison with—	In comparison with Australian C'wealth.
	Sq. miles.		
Continents—			
Europe	3,862,633	0.77	1.29854
Asia	16,705,070	0.18	5.61594
Africa	12,140,962	0.25	4.08157
North and Central America and West Indies ..	8,549,010	0.35	2.87402
South America	7,355,087	0.40	2.47265
Australasia and Polynesia	3,450,364	0.86	1.15995
Total, exclusive of Arctic and Antarctic Conts.	52,063,120	0.06	17.50267
Europe—			
Russia (inclusive of Poland & Ciscaucasia) ..	1,997,309	1.49	0.67146
Austria-Hungary (inclusive of Bosnia & Herzegovina)	261,259	11.39	0.08783
Germany	208,780	14.25	0.07019
France	207,054	14.37	0.06961
Spain	194,783	15.27	0.06548
Sweden	173,035	17.19	0.05817
Finland	125,689	23.67	0.04225
Norway	125,001	23.80	0.04202
United Kingdom	121,633	24.46	0.04089
Italy	110,632	26.89	0.03719
Denmark (inclusive of Iceland)	55,291	53.80	0.01859
Rumania	53,489	55.61	0.01798
Bulgaria	47,750	62.29	0.01605
Greece	41,933	70.94	0.01410
Portugal	35,490	83.81	0.01193
Serbia	33,891	87.77	0.01139
Switzerland	15,976	186.19	0.00537
Netherlands	12,582	236.42	0.00423
Albania	11,500	258.66	0.00387
Belgium	11,373	261.55	0.00382
Turkey	10,882	273.35	0.00366
Montenegro	5,880	505.88	0.00198
Luxemburg	999	2977.56	0.00034
Andorra	191	15573.72	0.00006
Malta	118	25208.31	0.00004
Liechtenstein	65	45762.78	0.00002
San Marino	38	78278.45	0.00001
Monaco	8	371822.63	..
Gibraltar	2	1487290.50	..
Total, Europe	3,862,633	0.77	1.29854
Asia—			
Russia (inclusive of Transcaucasia, Siberia, Steppes, Transcaspia, Turkestan and inland waters)	6,641,587	0.45	2.23278
China and Dependencies	3,913,560	0.76	1.31567
British India	1,093,074	2.72	0.36747
Independent Arabia	1,000,000	2.97	0.33618
Feudatory Indian States	709,555	4.19	0.23854
Persia	628,000	4.74	0.21112
Dutch East Indies	583,210	5.10	0.19606
Japan (and Dependencies)	261,276	11.38	0.08784
Turkey	247,271	12.03	0.08313

AREA OF AUSTRALIA IN COMPARISON WITH OTHER COUNTRIES—*continued.*

Country.	Area.	Australian Commonwealth in comparison with—	In comparison with Australian C'wealth.
	Sq. miles.		
ASIA—*continued*—			
Afghanistan	245,000	12.14	0.08236
Siam	195,000	15.25	0.06556
Mesopotamia	143,250	20.76	0.04816
Philippine Islands (incls. of Sulu Archipelago)	114,400	26.00	0.03846
Syria	106,740	27.87	0.03588
Laos	98,000	30.36	0.03295
Bokhara	83,000	35.84	0.02790
Omán	82,000	36.28	0.02757
British Borneo and Sarawak	73,106	40.69	0.02458
Nepal	54,000	55.08	0.01815
Annam	52,100	57.09	0.01752
Tonking	46,400	64.11	0.01560
Kurdistan	45,860	64.86	0.01542
Cambodia	45,000	66.10	0.01513
Federated Malay States	27,506	108.14	0.00925
Armenia	26,130	113.84	0.00878
Smyrna	25,801	115.29	0.00867
Ceylon	25,481	116.74	0.00857
Khiva	24,000	123.94	0.00807
Malay Protectorate (including Johore)	23,486	126.65	0.00790
Cochin China	21,988	135.28	0.00739
Bhutan	20,000	148.73	0.00672
Palestine	13,724	216.74	0.00461
Aden and Dependencies	9,005	330.33	0.00303
Timor, &c. (Portuguese Indian Archipelago)	7,330	405.81	0.00246
Brunei	4,000	743.64	0.00134
Cyprus	3,584	829.96	0.00120
Andaman and Nicobar Islands	2,895	1027.49	0.00097
Kiauchau (Neutral Zone)	2,500	1189.83	0.00084
Goa, Damaõ, and Diu	1,638	1815.98	0.00055
Straits Settlements	1,600	1859.11	0.00054
Sokotra	1,382	2152.37	0.00046
Hong Kong and Dependencies	391	7607.62	0.00013
Wei-hai-wei	285	10437.13	0.00010
Bahrein Islands	250	11898.32	0.00008
Kiauchau (late German)	200	14872.91	0.00007
French India (Pondicherry, &c.)	196	15176.43	0.00007
Kwang Chau Wan	190	15655.67	0.00006
Maldive Islands	115	25865.59	0.00004
Macao, &c.	4	743645.25	..
Total, Asia	16,705,070	0.18	5.61594
Africa—			
French Sahara	1,544,000	1.93	0.51906
Sudan	1,014,400	2.93	0.34102
Belgian Congo	909,654	3.27	0.30581
French Equatorial Africa	672,000	4.43	0.22591
Senegambia and Niger	568,273	5.23	0.19104
Angola	517,000	5.75	0.17381
French Military District of the Niger	502,000	5.93	0.16876
Union of South Africa	473,096	6.29	0.15905
Rhodesia	440,000	6.76	0.14792
Portuguese East Africa	428,132	6.95	0.14393
Tripoli and Benghazi	406,000	7.33	0.13649
German East Africa	384,180	7.74	0.12915
Abyssinia	350,000	8.50	0.11766
Egypt	350,000	8.50	0.11766

AREA OF AUSTRALIA IN COMPARISON WITH OTHER COUNTRIES—*continued.*

Country.	Area.	Australian Commonwealth in comparison with—	In comparison with Australian C'wealth.
AFRICA—*continued*—	Sq. miles.		
Mauretania	344,967	8.62	0.11597
Nigeria and Protectorate	332,000	8.96	0.11161
German South-west Africa	322,200	9.23	0.10832
Bechuanaland Protectorate	275,000	10.82	0.09245
British East Africa Protectorate	246,822	12.05	0.08298
Morocco	231,500	12.85	0.07783
Madagascar	228,000	13.05	0.07665
Algeria (including Algerian Sahara)	222,180	13.39	0.07469
Kamerun (French)	158,130	18.81	0.05316
Italian Somaliland	139,430	21.33	0.04687
Ivory Coast	125,000	23.80	0.04202
Uganda Protectorate	110,300	26.97	0.03742
Rio de Oro, &c.	109,200	27.24	0.03671
French Guinea	93,000	31.98	0.03126
Gold Coast Protectorate (with Nth. Territories)	80,000	37.18	0.02689
Senegal	74,012	40.19	0.02488
British Somaliland	68,000	43.74	0.02286
Tunis	50,000	59.49	0.01681
French Somali Coast	46,000	64.66	0.01546
Eritrea	45,800	64.95	0.01540
Liberia	40,000	74.36	0.01345
Nyassaland Protectorate	39,573	75.17	0.01330
Dahomey	39,000	76.27	0.01311
Kameroon (British)	33,000	90.14	0.01109
Sierra Leone and Protectorate	31,000	95.95	0.01042
Portuguese Guinea	25,000	118.98	0.00840
Togoland (French)	21,200	140.31	0.00713
Togoland (British)	12,500	237.97	0.00420
Basutoland	11,716	253.89	0.00394
Spanish Guinea (Rio Muni, &c.)	9,470	314.11	0.00318
Swaziland	6,678	445.43	0.00225
Gambia and Protectorate	4,504	660.43	0.00151
Cape Verde Islands	1,480	2009.85	0.00050
Fernando Po, &c.	1,198	2482.96	0.00040
Zanzibar	1,020	2916.26	0.00034
Réunion	970	3066.58	0.00033
Mauritius and Dependencies	809	3676.86	0.00027
Comoro Islands	650	4576.25	0.00022
St. Thomas and Principe Islands	454	6551.94	0.00015
Seychelles	156	19067.83	0.00005
Mayotte, &c.	140	21247.01	0.00005
Spanish North and West Africa	87	34190.59	0.00003
St. Helena	47	63288.96	0.00002
Ascension	34	87487.68	0.00001
Total, Africa	12,140,962	0.25	4.08157
North and Central America and West Indies—			
Canada	3,729,665	0.80	1.25385
United States (exclusive of Alaska, &c.)	2,973,890	1.00	0.99977
Mexico	767,198	3.88	0.25792
Alaska	590,884	5.03	0.19864
Newfoundland and Labrador	162,734	18.28	0.05471
Nicaragua	49,200	60.46	0.01654
Guatemala	48,290	61.60	0.01623
*Greenland	46,740	63.64	0.01571
Honduras	44,275	67.18	0.01488

* Danish colony only. Total area has been estimated as between 827,000 and 850,000 square miles.

AREA OF AUSTRALIA IN COMPARISON WITH OTHER COUNTRIES—*continued.*

Country.	Area.	Australian Commonwealth in comparison with—	In comparison with Australian C'wealth.
N. & C. AMERICA & W. INDIES—*continued*—	Sq. miles.		
Cuba	44,164	67.35	0.01485
Costa Rica	23,000	129.33	0.00773
San Domingo	19,332	153.87	0.00650
Salvador	13,176	225.76	0.00443
Haiti	10,204	291.51	0.00343
British Honduras	8,592	346.20	0.00289
Bahamas	4,404	675.43	0.00148
Jamaica	4,207	707.05	0.00141
Porto Rico	3,606	824.90	0.00121
Trinidad and Tobago	1,974	1506.88	0.00066
Leeward Islands	715	4160.25	0.00024
Guadeloupe and Dependencies	722	4119.92	0.00024
Windward Islands	527	5644.37	0.00018
Curaçao and Dependencies	403	7381.09	0.00014
Martinique	385	7726.18	0.00013
Turks and Caicos Islands	224	13279.38	0.00008
Barbados	166	17919.16	0.00006
Virgin Islands of U.S.A., late Danish West Indies	132	22534.70	0.00004
St. Pierre and Miquelon	93	31984.74	0.00003
Cayman Islands	89	33422.25	0.00003
Bermudas	19	156556.89	..
Total, N. and C. America and W. Indies	8,549,010	0.35	2.87402
South America—			
Brazil	3,275,510	0.91	1.10117
Argentine Republic	1,153,119	2.58	0.38766
Peru	722,461	4.12	0.24288
Bolivia	514,155	5.79	0.17285
Colombia (exclusive of Panama)	440,846	6.75	0.14820
Venezuela	398,594	7.46	0.13400
Chile	289,829	10.26	0.09744
Paraguay	165,000	18.03	0.05547
Ecuador	116,000	25.64	0.03900
British Guiana	89,480	33.24	0.03008
Uruguay	72,153	41.23	0.02426
Dutch Guiana	46,060	64.58	0.01548
Panama	32,380	91.86	0.01089
French Guiana	32,000	92.96	0.01076
Falkland Islands	6,500	457.63	0.00219
South Georgia	1,000	2974.58	0.00034
Total, South America	7,355,087	0.40	2.47265
Australasia and Polynesia—			
Commonwealth of Australia	2,974,581	1.00	1.00000
Dutch New Guinea	151,789	19.60	0.05103
New Zealand and Dependencies	104,751	28.40	0.03522
Papua	90,540	32.85	0.03044
Kaiser Wilhelm Land	70,000	42.49	0.02353
Bismarck Archipelago	15,730	189.10	0.00529
British Solomon Islands	11,380	261.39	0.00383
New Caledonia and Dependencies	8,548	347.99	0.00287
Fiji	7,083	419.96	0.00238
Hawaii	6,449	461.25	0.00217
New Hebrides	5,100	583.25	0.00171

AREA OF AUSTRALIA IN COMPARISON WITH OTHER COUNTRIES—*continued.*

Country.	Area.	Australian Commonwealth in comparison with—	In comparison with Australian C'wealth.
	Sq. miles.		
AUSTRALASIA AND POLYNESIA—*continued*—			
French Establishments in Oceania ..	1,520	1956.96	0.00051
German Samoa	1,000	2974.58	0.00034
Caroline, Pelau and Marshall Islands ..	710	4189.55	0.00024
Tonga	385	7726.18	0.00013
Marianne Islands	250	11898.32	0.00008
Guam	225	13220.36	0.00008
Gilbert and Ellice Islands	208	14300.87	0.00007
Samoa (U.S.A. part)	102	29162.56	0.00003
Norfolk Island	13	228813.92	—
Total, Australasia and Polynesia ..	3,450,364	0.86	1.15995
British Empire, excluding Mandatory Territories	12,767,599	0·23	4·29223
Mandatory Territories	983.464	3.02	0.33062

It should be noted that in the above table the figures quoted for areas of the several countries of Europe refer to conditions prevailing prior to the outbreak of war, and modifications will in some instances be necessary after the final adjustment of boundaries has been effected.

3. **Relative Areas of Political Subdivisions.**—As already stated, Australia consists of six States and the Northern and Federal Territories. The areas of these, in relation to one another and to the total of Australia, are shewn in the following table :—

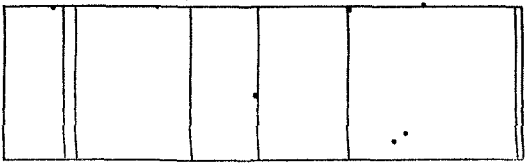
RELATIVE AREAS OF STATES, TERRITORIES, AND COMMONWEALTH.

State or Territory.	Area.	Ratio which the Area of each State and Territory bears to that of other States, Territories, and Commonwealth.							
		N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	N. Ter.	C'wlth.
	Sq. miles.								
New South Wales	309,432	1.000	3.521	0.461	0.814	0.317	11.804	0.591	0.104
Victoria ..	87,884	0.284	1.000	0.131	0.231	0.090	3.352	0.168	0.030
Queensland ..	670,500	2.167	7.629	1.000	1.764	0.687	25.577	1.280	0.225
South Australia	380,070	1.228	4.325	0.567	1.000	0.389	14.498	0.726	0.128
West. Australia	975,920	3.154	11.105	1.456	2.568	1.000	37.228	1.864	0.328
Tasmania ..	26,215	0.085	0.298	0.039	0.069	0.027	1.000	0.050	0.009
North. Territory	523,620	1.692	5.958	0.781	1.378	0.537	19.974	1.000	0.176
Federal Territory	940	0.003	0.011	0.001	0.002	0.001	0.036	0.002	0.000*a*
Commonwealth	2,974,581	9.613	33.847	4.436	7.826	3.048	113.469	5.681	1.000

a The correct decimal is 0.0003.

Thus, looking at the top line, New South Wales is seen to be over three-and-a-half times as large as Victoria (3.521) and less than one-half the size of Queensland (0.461); or again, looking at the bottom line, the Commonwealth is shewn to be more than nine-and-a-half times as large as New South Wales (9.613), and nearly thirty-four times as

These relative magnitudes are shewn in the small diagram below. It may be added that Papua (or British New Guinea), with its area of 90,540 square miles, is 0.030 of the area of the Commonwealth. The comparatively small size of the Federal Territory prevents its being shewn in this diagram.



	N.S.W.	V.	Qld.	S.A.	N.T.	W.A.	Tas.
% on total ..	10	3	22	13	18	33	1

4. **Coastal Configuration.**—There are no striking features in the configuration of the coast; the most remarkable indentations are the Gulf of Carpentaria on the north and the Great Australian Bight on the south. The Cape York Peninsula on the extreme north is the only other remarkable feature in the outline. In Year Book No. I, an enumeration of the features of the coast-line of Australia was given (see pp. 60 to 68).

(i) *Coast-line.* The lengths of coast-line, exclusive of minor indentations, both of each State and of the whole continent, are shewn in the following table:—

SQUARE MILES OF TERRITORY PER MILE OF COAST LINE.

STATES, TERRITORY, AND CONTINENT.

State.	Coast-line.	Area ÷ Coast-line.	State.	Coast-line.	Area ÷ Coast-line.
	Miles.	Sq. miles.		Miles.	Sq. miles.
New South Wales(*a*)	700	443	South Australia	1,540	247
Victoria ..	680	129	Western Australia	4,350	224
Queensland ..	3,000	223	Continent (*b*) ..	11,310	261
Northern Territory	1,040	503	Tasmania ..	900	29

(*a*) Including Federal Territory. (*b*) Area 2,948,366 square miles.

For the entire Commonwealth this gives a coast-line of 12,210 miles, and an average of 244 square miles for one mile of coast-line. According to Strelbitski, Europe has only 75 square miles of area to each mile of coast-line, and, according to recent figures, England and Wales have only one-third of this, viz., 25 square miles.

(ii) *Historical Significance of Coastal Names.* It is interesting to trace the voyages of some of the early navigators by the names bestowed by them on various coastal features—thus Dutch names are found on various points of the Western Australian coast, in Nuyt's Archipelago, in the Northern Territory and in the Gulf of Carpentaria; Captain Cook can be followed along the coasts of New South Wales and Queensland; Flinders' track is easily recognised from Sydney southwards, as far as Cape Catastrophe, by the numerous Lincolnshire names bestowed by him; and the French navigators of the end of the eighteenth and the beginning of the nineteenth century have left their names all along the Western Australian, South Australian, and Tasmanian coasts.

5. **Geographical Features of Australia.**—In each of the earlier issues of this Year Book fairly complete information has been given concerning some special geographical element. Thus No. 1 Year Book, pp. 60–68, contains an enumeration of Coastal features; No. 2, pp. 66–67, deals with Hydrology; No. 3, pp. 59–72, with Orography; No. 4, pp. 59–82, with the Lakes of Australia; No. 5, pp. 51–80, with the Islands of Australia; No. 6, pp. 55–66, with the Mineral Springs of Australia; No. 7, pp. 56–58, with the Salient Features in the Geological History of Australia, with special reference to changes of climate. A special article dealing with the plains and peneplains of Australia appeared in No. 12 Year Book, pp. 82–88. This practically completes the description of the ordinary physical features.

§ 2. The Fauna of Australia.

An authoritative article describing in some detail the principal features of the Fauna of Australia was given in Year Books No. 1 (see pp. 103 to 109) and No. 2 (see pp. 111 to 117), while a synoptical statement appeared in No. 3 (see pp. 73 to 76). Considerations of space, however, preclude the inclusion in this issue of more than a passing reference to the subject.

§ 3. The Flora of Australia.

In Year Books No. 1 (see pp. 109 to 114) and No. 2 (see pp. 117 to 122) a fairly complete though brief account was given of the Flora of Australia, and in Year Book No. 3 similar information in a greatly condensed form will be found on pp. 76 to 78. Space in this issue will not permit of more than a mere reference to preceding volumes.

A special article dealing with Australian fodder plants, contributed by J. H. Maiden, Esq., F.L.S., Government Botanist of New South Wales, and Director of the Botanic Gardens, Sydney, appeared in Official Year Book No. 6, pp. 1190–6. A special article on the grasses and saltbushes of Australia, contributed by E. Breakwell, B.A., B.Sc., Agrostologist at the Botanic Gardens, Sydney, appeared in Year Book No. 9, pp. 84–90. Year Book No. 10 contained two special articles; one dealing with Australian eucalyptus timbers, contributed by R. T. Baker, F.L.S., appeared on pp. 85 to 92, and one by H. G. Smith, F.C.S., dealing with the chemical products of Australian eucalypts, appeared on pp. 92–98.

§ 4. Seismology in Australia.

A brief statement regarding the position of seismology and seismological record in Australia appeared in Year Book No. 4, pp. 82 and 83.

§ 5. The Geology of Australia.

1. **General.**—Independent and authoritative sketches of the geology of each State were given in Year Books No. 1 (see pp. 73 to 103) and No. 2 (see pp. 78 to 111). Want of space has precluded the insertion of these sketches in the present issue of the Year Book, and it has not been considered possible to give anything like a sufficient account of the geology of Australia by presenting here a mere condensation of these sketches. Reference must, therefore, be made to either Year Book No. 1 or No. 2, *ut supra*.

2. **Geological Map of Australia.**—The map shewing the geographical distribution of the more important geological systems and formations, which appeared on page 51 of Year Book No. 12 and in preceding issues, has been discontinued pending the preparation of a new map embodying later information.

3. **The Plains and Peneplains of Australia.**—A special article dealing with this subject appears on pp. 82–88 of Year Book No. 12.

4. **The Building Stones of Australia.**—Independent and authoritative descriptions of the building stones of each State (with the exception of Queensland) will be found in Official Year Book No. 9, pp. 446–466.

A special article dealing with "The Building Stones of Queensland" will be found on pp. 89–95 of Year Book No. 12.

5. **Past Glacial Action in Australia.**—A special article on this subject will be found in Year Book No. 13, pp. 1133 *et seq.*

§ 6. Evidences of Past Volcanic Action in Australia.*

(A) Australia.

1. **Introduction.**—It will help to make clear the nature of the evidence of past volcanic action in Australia if we consider briefly the conditions under which such activity is developed on the earth at the present time, and the nature of present-day volcanic products.

* Contributed by Ernest W. Skeats, D.Sc., A.R.C.S., F.G.S., Professor of Geology and Mineralogy, University of Melbourne.

The geographical distribution of active volcanoes at present lies mainly along two lines, the one passing through the West Indies and the Mediterranean, the other girdling the Pacific, passing well to the east of the present coast-line of Australia, and stretching from the Kurile and Japanese Islands, through Java, New Guinea, New Hebrides, and New Zealand to the Antarctic at Mount Erebus. These lines lie near or along the margins of continents and ocean basins, and are regions of present crustal instability along which the forces of folding or faulting, with accompanying earthquakes, from time to time are renewed. Other lines of weakness are submarine, and at intervals along such lines volcanic islands such as Samoa and Hawaii have been built up. These lines may be pictured as lines along which the earth's crust is weak and fissured and the vertical rock pressure less than in adjoining areas. Such conditions are favourable for the rise of molten rock to the surface, along fissures, from the highly heated depths of the crust, and its passage to the surface may be facilitated by lateral crustal pressure or warping of adjoining areas, and by the expansion of highly heated gases present in the molten magmas as the result of diminished pressure above the fracture zones.

Among present-day types of volcanic activity are the wide lava floods poured out from fissures, as in the volcanic regions of Iceland and the centralized vents or volcanoes generally localized at intervals along fracture lines. Such a volcano commonly consists of a conical hill with a central crater and a vent or plug communicating with the interior. The crater may become enlarged by violent explosions or subsequent collapse, and may be broken across or breached by lava flows pouring over a low lip of the crater. Cones may consist entirely of lava, of scoria, of tuff, or of ash, or these may alternate and form a composite cone.

When the activity is effusive, lavas are poured out; when explosive, fragmental materials, such as scoria or tuff, accumulate round the vent. Dykes of volcanic rock frequently radiate from the necks of the volcanoes, and if these reach the surface may form parasitic cones. Volcanoes active on land may have their lavas and ashes interbedded with deposits of land or lake origin, while in submarine eruptions the products become intercalated between marine sediments, and may ultimately rise above the surface to form volcanic islands, so numerous in the Pacific Ocean.

The chemical composition of lavas may be highly siliceous, forming so-called acid lavas, such as rhyolite and obsidian; intermediate in character, giving rise to such rocks as trachytes and andesites; or basic, that is, with low silica percentage and rich in lime, magnesia and iron, in which case basalts and allied rocks are formed. Grouped in another way certain lavas may be described as calcic, in which lime and magnesia are present in greater quantities than potash and soda. Of this group, andesites and basalts are examples. Another group constitutes the alkalic rocks—rich in soda or potash—to which rhyolites, trachytes, and phonolites belong. A third group is recognised—the so-called spilite series—consisting of basic lavas, rich in albite felspar, usually submarine in origin, and associated with cherts.

Calcic and alkalic lavas, such as basalts and rhyolites or phonolites, may be poured out successively from the same or adjoining vents, indicating that some process of separation or differentiation has gone on in the reservoir of magma beneath the surface. While this is so, these three groups—the calcic, alkalic, and spilitic—are often associated with more or less distinct types of earth movement or earth structure, the calcic group with regions undergoing subsidence by folding or warping, though also associated with plateau movements, the alkalic closely associated with plateau movements of elevation or depression and often near fault lines, while the spilite or albite rich basic series appears to be formed normally as submarine flows at some distance from a shore line and at moderate depth.

Examples illustrating all the above phases, physical and chemical, of volcanic action are to be found among rocks of various geological ages in Australia, and we may now proceed to review in a summarized way the distribution of volcanic rocks in Australia, both geographically and geologically. It will be understood that our knowledge of the geology of the more remote parts of the continent is vague and uncertain, and that in the older rocks of the geological record it is sometimes difficult or impossible to recognise the existence of volcanic products on account of the great chemical and structural changes which they have undergone. Commencing with the oldest rocks, and working up the geological column, it will be convenient to record the principal volcanic rocks in each State and in Papua in turn.

2. **Pre-Cambrian Volcanic Rocks.**—(i) *Western Australia.* In the Pilbara gold-field, the Warrawoona beds consist of basic lavas and sills, in places altered to greenstone schists. At Kalgoorlie ancient sediments rest on a group of basic rocks forming the Boulder auriferous belt. Quartz dolerite is the most important rock. The igneous series is probably mainly intrusive. In the Norseman field, in the southern part of the State, bedded amygdaloidal lavas are associated with the pre-Cambrian sediments. On the South Coast, from west to east of Mount Barren, occur sills of amphibolized quartz-dolerite.

In the Kimberley division occurs the Nullagine series which, while apparently younger than the Warrawoona series, may be pre-Cambrian, and appears to be not younger than older Palæozoic. Associated with the sediments of this series submarine basalts, dolerites, amygdaloidal andesites and submarine ashes occur in great profusion on the Leopold Plateau.

In the Murchison gold-field, tuffs occur at Meekatharra and in the Yalgoo field at Mount Singleton. In the West Pilbara field, augite-andesites and quartz-felsites or rhyolites occur near the base of the series.

(ii) *Northern Territory.* In the Woggaman province submarine lavas are recorded, but, with this exception, the references are all to highly metamorphosed rocks which on indefinite evidence are referred to as altered tuffs. These are recorded from such localities as the Katherine River above the telegraph station, Arnhem Land, Marranboy tin-field, Yenberrie wolfram-field, Pine Creek, Mount Diamond, Brilliant, Woolngie, the Woggaman province, and the Tanami district.

3. **Cambrian Volcanic Rocks.**—(i) *New South Wales.* The uralitic dolerite (amphibolite) dykes of Broken Hill may be of Cambrian age.

(ii) *Victoria.* In several localities in western, central, and eastern Victoria, notably at Mount Stavely near Geelong, Heathcote, Mount William near Lancefield, Mount Major near Dookie, the Howqua River, and Waratah Bay, a big series of ancient basic lavas, agglomerates, and tuffs, with interbedded cherts and associated shales in places, underlie conformably the Lower Ordovician sediments, and appear to be exposed along axial lines trending roughly north and south. At the Dolodrook River, near Mount Wellington, basic submarine tuffs are interbedded with Upper Cambrian fossiliferous limestones, and constitute the Heathcotian series. The cherts and shales contain Upper Cambrian marine fossils. The volcanic rocks constitute submarine flows and ashes, and some of them are rich in primary or secondary albite, and therefore belong to the spilite series of rocks.

(iii) *South Australia.* Uralitic dolerite dykes at Blinman and Mount Remarkable are possibly of Cambrian age.

(iv) *Tasmania.* In the Dundas district, the central and western part of the Zeehan field, the Leven Gorge, Gunn's Plains, the North West Coast in Barkworth's Bay west of Goat Island, a mixed series of sediments and volcanic rocks occurs. They extend on an axial line parallel to the West Coast from Bass Strait to Birch's Inlet, in Macquarie Harbour. They are probably of Upper Cambrian age, and resemble the Heathcotian series of Victoria. They include slates, porphyroids (crushed quartz and felspar porphyries), breccias and submarine tuffs, and vesicular lavas resembling the spilite or amygdaloidal diabase of German authors.

(v) *Northern Territory.* In the Edith River district and other areas southward from it are extensive developments of basalt, dacite, volcanic agglomerates with boulders up to 4 feet in diameter, and tuffs several hundreds of feet in thickness. At Maude Creek, amygdaloidal basalt occurs. South of Rendezvous Hill, near Roper Bar, sandstones of apparently Cambrian age overlie natrolite basalts. South of Red Lily a similar basalt is interbedded with quartzites, but may be an intrusive sill. From Hodgson Downs to McArthur River basalt covers a great area of timberland country. On Nutwood Downs station, 5 miles from Tamumburini, acid tuffs are interbedded with the quartzite series. In the Pine Creek district, near Blackfellows Creek, and Swamp Billabong on Daly-Road, dolerites are apparently interbedded in the Lower Cambrian series, and similar rocks occur in the Victoria River and Willaroo districts.

4. **Ordovician.**—(i) *New South Wales.* In the Orange-Cadia district andesitic lavas and tuffs are associated with Ordovician sediments, while andesites also occur in the Forbes-Parkes district. There is also a great development of contemporaneous basic tuffs in the Upper Ordovician rocks of the Lyndhurst gold-field.

(ii) *Victoria.* At Mount Easton, near Wood's Point, loose-textured nodular beds, with included lapilli of andesite, appear to be submarine tuffs and are interbedded with Upper Ordovician sediments.

(iii) *Western Australia.* In the Townsend Range, in latitude 26° S., close to the South Australian border, and near the base of the series, are vesicular basalts and dolerite lavas apparently interbedded with sediments, and presumably of submarine origin. They may be of Ordovician age.

5. **Silurian.**—(i) *New South Wales.* At the Jenolan Caves, rhyolites, some of which are intrusive, and tuffs are interstratified with Silurian sediments. In the Orange, Yass, the Federal Territory of Canberra, and Cobar districts, rhyolites, some of which also are intrusive, and tuffs occur. In the Forbes-Parkes district andesitic lavas and tuffs are associated with Silurian sediments.

(ii) *Victoria.* In the Thomson River district, near Walhalla, in an Upper Silurian limestone, flakes of biotite and chlorite, and bands of tuffaceous fragments suggest some submarine volcanic activity, but the fragments may be of detrital origin.

6. **Devonian.**—(i) *New South Wales.* (*a*) *Lower Devonian.* In the south-east of the State, at Taemas, 5,000 feet of acid lavas and tuffs occur, while the overlying Lower Devonian marine limestones are more or less tuffaceous throughout. At Tamworth spilite lavas and interbedded tuffs occur.

(*b*) *Upper Devonian.* In the Yalwal district, and also near Eden, rhyolites and basalt flows are prominent.

(ii) *Victoria.* (*a*) *Lower Devonian.* In north-east and east Victoria the Snowy River porphyries consist of a volcanic series stretching from the Murray River southwards to Nowa Nowa, and from Cobberas, on the west, through the Mitta Mitta district to Corryong, in the north-east of the State. They consist of lavas and ashes from volcanic foci developed along meridional fractures close to a sinking shore line, and include porphyroids, trachytic-andesites, quartz-porphyrites, quartz-ceratophyres, and stratified ash beds. They pass upwards near Buchan into andesitic lavas and dykes or, in other places, into calcareous tuffs, which merge upwards into mid-Devonian marine limestones. The rocks of Noyang, in Dargo, may be of the same age, and include alkali rocks allied to quartz-ceratophyre. Rocks allied to the dacites, containing quartz and garnet, occur in the King Valley, and from Mount Timbertop and the Howqua River, towards Buller Creek, underlie Lower Carboniferous sediments, and may be of Lower Devonian age.

The main dacite series of central Victoria appears to have been the product of subaerial Lower Devonian volcanoes, and forms thick masses, in places 2,000 to 3,000 feet in thickness, of biotite or hypersthene dacites. Near Lilydale, toscanites form the base of the series. The Dandenong Ranges, Healesville to Warburton Ranges, the Marysville district, Mount Macedon, and the northern part of the Strathbogie Ranges are largely composed of lavas, with occasional tuffs of this rock series.

(*b*) *Upper Devonian or Lower Carboniferous.* The Upper Palæozoic sediments stretching from Ben Cruachan past Mount Wellington to the Snowy Bluff and northwards to the Howqua district, in Victoria, contain intercalated volcanic rocks. The rocks are mainly rhyolites and rhyolite tuffs. At Mount Wellington the lava is 2,000 feet in thickness. Thin lava flows of amygdaloidal basalt occur at Mount Wellington, and at the Snowy Bluff eight thin flows occur separated by beds of sandstone and shale.

In western Victoria, quartz porphyries, possibly intrusive, may be correlated with the Upper Palæozoic acid volcanic rocks of eastern Victoria. They occur between Hamilton and Cavendish, and near the latter place appear to underlie the Grampian sandstones. In the latter rock in places there occur dykes, sills, and possibly lavas of an acid character. The intrusive members may be as young as Upper Carboniferous.

7. **Carboniferous Volcanic Rocks.**—(i) *New South Wales.* Lower carboniferous volcanic rocks occur in the Barraba–Tamworth district, as andesitic tuff in the mudstones of the Burindi series, and as lavas and tuffs of rhyolite trachyte and andesite in the overlying Rocky River series. Further south, in the Hilldale-Dungog area, tuffs are interstratified with mudstones in the Burindi series. At Currabubula, 130 miles N.N.W. of Newcastle, fine-grained acid tuffs occur at the top of the Burindi series. During this volcanic period small flows of basalt and local eruptions of soda rhyolite occurred, while pyroxene andesite was intruded into the Burindi series. The recently described

Kuttung series of Middle and Upper carboniferous age, especially at Paterson, Clarence town, Seaham, and Eelah, includes large areas of soda rhyolites, toscanites, dacites, hornblende andesites, hornblende mica andesites, pyroxene andesites, and pitchstones. Near Pokolbin, potash rhyolites, soda rhyolites, trachytes, albite trachytes, and andesites occur. In northern New England, in the Drake gold-field near Bolivia and Tenterfield, rhyolites and tuffs are represented. Near the top of the Kuttung series, come important volcanic rocks with extensive outpourings of basalt, tuffs, and agglomerate, succeeded by sills and dykes of normal, albite, and teschenitic dolerites, hornblende and pyroxene andesites, and, lastly, by trachytoid quartz ceratophyres.

8. **Permo-Carboniferous Volcanic Rocks.**—(i) *New South Wales.* In the Lower Marine series in the Maitland district, extensive flows of natrolite basalt occur, while in the Drake gold-field in northern New England, andesitic lavas and tuffs are represented, which have been referred to this period.

At the close of the Upper Marine series, at Illawarra on the South coast, submarine lavas and tuffs 1,000 feet thick, and ranging from basic to intermediate in composition, are represented. They include alkali rocks such as orthoclase-basalts (latites), and continue on a reduced scale to the period of the Upper Coal Measures. During this latter period small basaltic flows were poured out in the coal measure swamps. At Murrurundi, on the north-west margin of the coal basin, basalts were poured out to a thickness of several hundred feet. At Newcastle, the Nobbys chert near the top of the Permo-Carboniferous series consists of silicified rhyolite tuff.

(ii) *Queensland.* In the Bowen River district the lower series includes basalts and melaphyres exposed over wide areas. In the Mackay district coarse volcanic agglomerates, basalt, dolerites, and felspar porphyry are represented.

In the Upper Bowen series, in the type area, plains of basalt and porphyrite occur. In the Mackenzie River and at Bowen, basalts and copper-bearing tuffs are interbedded in the Upper Marine sediments, while andesites, possibly of this age, occur on the Dawson River, and at Mount Morgan. At Gympie, amygdaloidal basalts, andesites, and volcanic ash are interbedded with sediments. Eight miles from Warwick, on the Darling Downs, is an extensive development of rhyolites, which may be of Upper Carboniferous age or may belong to the Lower Marine series of Permo-Carboniferous age. The latter sediments in this district are largely tuffaceous.

(iii) *Northern Territory.* In the Pine Creek, Victoria River, and Tanami districts, basalts and other volcanic rocks of doubtful age are, by some observers, referred to this period.

9. **Triassic Volcanic Rocks.**—(i) *New South Wales.* The Narrabeen series, of Lower Triassic age, consists partly of shales composed of redistributed tuffaceous material.

(ii) *Queensland.* At the base of the Ipswich sedimentary series, at and near Brisbane, occurs a coarse rhyolite tuff of Triassic age.

10. **Jurassic Volcanic Rocks.**—(i) *Victoria.* The extensive lacustrine sandstones and mudstones developed in western Victoria, the Otway Ranges, near Geelong, and in South Gippsland are composed largely of plagioclase, chlorite, and quartz, and may represent tuffaceous or redistributed tuffaceous material.

(ii) *Tasmania.* Probably at the close of the Jurassic, or during the Cretaceous period, gigantic intrusions, chiefly sills up to 500 feet thick of diabase, occurred in Tasmania, forming the precipitous tiers of that island. They are probably associated with plateau movements of subsidence and faulting.

11. **Kainozoic Volcanic Rocks.**—(i) *New South Wales.* The Kainozoic volcanic rocks of this State, as in Queensland and Victoria, have a threefold development. The oldest consist of an Older Basalt series consisting of cappings on the residuals of an old peneplain, as on the Blue Mountains tableland and the Bald Hills near Bathurst, and they also form deep leads near Kiandra. The middle series consists mainly of alkali rocks, and occurs principally in groups of extinct cones of limited area. The Canoblas mountains, near Orange, the Warrumbungle mountains, near Coonabarabran, and the Nandewar mountains, near Narrabri, are the best known. The sequence at Canoblas, which is generally similar to the other areas, consists from below upwards of comendites and quartz trachytes, alkaline phonolitic trachytes, and andesites.

In the Mittagong-Bowral district occur residual volcanic plugs of alkaline syenite allied to bostonite. The Gib Rock and Mount Jellore consist of similar conical masses of alkaline trachytes. Alkaline trachytes occur also near Dubbo and various places in the Northern Rivers district. In the Kiama district sills of nepheline syenite and tinguaite occur, and monchiquite dykes, which may be post-Tertiary in age.

In the Sydney-Blue Mountains area occur dykes radiating from east of Botany Bay. They include basalt, monchiquite, nephelinite, and basanite, and are probably of Middle to Upper Kainozoic age. Essexite or analcite-dolerite forms a sill (?) at Prospect, near Parramatta. Many volcanic necks occur in this region, some filled wholly or partly with basalt, while others are only explosive steam vents filled wholly or partly with non-igneous breccia from the wall rock. Occurrences at Hornsby and the Basin in the Nepean River are of this character. A volcanic neck at Dundas, near Parramatta, consists of basalt, agglomerate, and xenoliths of basic and ultrabasic plutonic rocks.

Tinguaites occur at Kosciusko, Berrigan, and Mount Stormy. Leucite-basalts are found at Cudgellico, Byrock, El Capitan, and Harden, and nepheline-basalt at Capertee and Mount Royal.

The Newer Basalt series, the plateau-basalts, occur as extensive sheets resting on the younger tableland or peneplain. Their greatest development is in New England, where they cover some hundreds of square miles near Inverell, Glen Innes, Armidale, Walcha, and other localities. On the central tableland they are met with in the Orange, Blayney, and Oberon districts, and on the southern tableland between Cooma and Bombala. They appear to have developed mainly from fissure eruptions, as no cones are found, and tuffs are rare.

(ii) *Victoria.* The threefold development of Kainozoic volcanic rocks is more clearly shewn than in any State except, perhaps, Queensland, and the association in some localities with marine or lacustrine sediments enables their relative age to be approximately determined. The lowest series consists of the Older Basalts. They are developed in and around Melbourne at Royal Park, Essendon, Broadmeadows, and Keilor, where they underlie Lower Kainozoic marine sediments. They are represented also near Geelong, at French Island, and Phillip Island. At Cape Schanck, a bore penetrated them for over 800 feet, while at Flinders another bore passed through over 1,200 feet of older basalt. They are widespread in South-east Gippsland, as at Buln Buln, Leongatha, Neerim, Mirboo, etc., while in North Gippsland they cap the plateau sometimes at elevations of over 5,000 feet, as at Mount Feathertop and Dargo High Plains.

The Middle Kainozoic series consists of alkali rocks. In the Western district of Victoria anorthoclase aegirine trachytes occur at Carapook, Coleraine, Mount Koroit, Koolomert, and the "Giant Rock" at Wotong Vale. Near Casterton two small lava flows of phonolite occur. In central Victoria, at Mount Macedon, the sequence from below upwards appears to be lavas of anorthoclase aegirine trachyte, volcanic plugs or mamelons of solvahergite forming the Camel's Hump, the Hanging Rock, and Brock's Monument, anorthoclase basalt lavas and flows of macedonite and woodendite, followed by olivine bearing trachytes and limburgite. Near Macalister's Rock, north of Mount Macedon, a tuff contains well-developed but minute nepheline crystals. Nepheline basalts also occur near Greendale. Volcanic hills of trachyte and trachy-phonolite, such as Blue Mountain, occur between Blackwood and Daylesford. The monchiquite dykes of Bendigo and Castlemaine, and similar dykes near Daylesford and Melbourne, may be genetically related to the alkali rocks. In north-eastern Victoria eight volcanic plugs or dykes of tinguaite and phonolite occur in the highlands south of Harrietville, while a nepheline phonolite volcano forms Gallows Hill near Tolmie, about 14 miles north-east of Mansfield. At Frenchman's Hill, just north of Omeo, a volcanic hill, with central core of solvabergite, has on its flanks lavas of anorthoclase trachyte and a more or less radial system of dykes, including pegmatites, quartz veins, bostonites, diabase, trachyte, and seven or eight dykes of nepheline phonolite. In Benambra, at Mount Leinster, a volcanic hill consists of solvabergite, anorthoclase trachyte, and dyke rocks allied to variolite.

The Upper Kainozoic to recent volcanic rocks in Victoria form very extensive plains, stretching from Mount Gambier in South Australia, through the Western district of Victoria to Melbourne, and in several places, as in the Loddon Valley, fill old valleys and run for long distances north of the present Main Divide. They cover over 6,000 square miles of surface, and are diversified by hundreds of small volcanic cones or puys in various stages of preservation or dissection, and probably the most recently active cone was the

compound one of Tower Hill, west of Warrnambool. Tuffs from Tower Hill overlie dune limestones containing still existing species of shells. Other well-preserved cones are Mount Noorat and Mount Franklin. Mount Bullenmerri, near Camperdown, consists of a caldera with crater enlarged probably by explosion, and now forming a lake. Breached cones occur as at Mount Leura, near Camperdown, and Mount Buninyong, near Ballarat. Broad depressions of the surface of the lava plains have formed extensive but shallow lakes, such as Lakes Colac and Colongulac. In places, the present streams have trenched deep and sometimes wide valleys through the lava plains. The Newer Basalt flows in and near Melbourne, as, for instance, at Clifton Hill, Burnley, and Footscray, have been extensively quarried for road metal and building stone. The rocks are mainly olivine basalts, but analcite has been recorded from a coarse olivine-augite dolerite or essexite occurring as boulders in the tuffs at the base of the volcanic series at Lake Bullenmerri. The eruptions probably proceeded mainly from fissures now concealed beneath the lava flows and connected with plateau movements of elevation and subsidence and faulting, which affected Victoria at intervals from Post-Pliocene to recent times. In some places the sequence is first tuffs, then lava flows, while the later volcanic cones consist mainly of scoria and tuffs. Well-preserved volcanic bombs are found on the flanks of many of the cones. Many of the tuffs are well bedded, and excellent sections are seen at places such as Tower Hill, Lake Bullenmerri, and Lake Burrumbeet. The flooding of such a large area of Victoria with basalt obliterated the old streams, and the sealing up of these old river valleys formed the deep leads which contained rich deposits of gold-bearing sands and gravels, as at Ballarat, Ararat, and the Loddon Valley.

(iii) *Queensland.* Volcanic rocks of three series and of different age are represented. The oldest consist of extensive basalt flows and basaltic tuffs and agglomerates in south-east Queensland between Ipswich and the New South Wales border, and were probably the products of fissure eruptions. Basalts of this series are widespread on the Darling Downs, as at Warwick and Toowoomba. The thickness of this series is usually less than 100 feet, but at Mount Lindsay it is over 1,500 feet. The middle member of the volcanic series consists of alkali rocks largely rhyolite and trachyte tuffs and agglomerates, rhyolite and pitchstone dykes, and extensive lavas of rhyolite and trachyte. Rhyolites especially occur in the southern part of south-east Queensland near the MacPherson Range, and trachytes in the south-west of the area along the line of the main range. Probably of the same age as this middle series are the volcanic plugs, flows, and associated tuffs of the Glasshouse Mountains, the Esk, the Yandina district, Mount Flinders, and Fassifern, Cainbable Creek, and Woodhill areas, in which, while andesites and dacites occur, as in the Glasshouse Mountains and the Esk district respectively, the main development consists of alkali rocks, such as trachytes, soda trachytes, and soda rhyolites. To this period may also be referred the volcanic rocks of Springsure, in Central Queensland, which also have a threefold development, an older basalt series of agglomerates and lavas, followed by an alkali series of noseau trachytes or trachy-phonolites, in which precious opal has been found, and succeeded in turn by a newer series of basalts. Somewhat similar alkali rocks occur at Mount Larcombe, south of Rockhampton and in the hills near Yeppoon, to the north-east of Rockhampton.

Possibly the leucite basalts of the Normanby Reefs, in the Cooktown district in North Queensland, may belong to the middle alkali series of other areas in the State.

The upper series of Kainozoic volcanic rocks in Queensland consists of basalts and andesites in successive and numerous flows in the south-east part of the State. At the Lamington plateau, the maximum development of 2,000 feet of basalt occurs. Agglomerates and tuffs are not found in the southern part of south-east Queensland, but occur on the main range and at Toowoomba. Basaltic rocks of uncertain age, possibly Upper Kainozoic, occur in various localities, such as the Anakie, Clermont, and Herberton districts.

(iv) *South Australia.* Small basaltic vents or puys of Upper Kainozoic to recent age occur in the south-east part of the State from Mount Schank, the best-preserved cone, to Mount Graham, a distance of 35 miles. Mount Gambier is the largest cone, and consists of ash, scoria, and lapilli. Small flows of basalt have issued from lateral fissures near the base of the cones. The crater is Brown's Lake; other lakes, such as Blue Lake and Leg of Mutton Lake, are not craters, but due to subsidence. On Kangaroo Island, lava possibly of somewhat greater age filled up a valley from Kingscote to Rettie's Bluff, 5 miles west of Kingscote.

(v) *Western Australia.* In the Kimberley district, basic lavas and ashes occur in the valleys of the Ord and the Bow rivers. On the Belon River, a dome or puy of basalt formed one of the foci from which lavas issued. In the southern part of the State, basalt flows occur near Bunbury, and other flows are located to the south, as at the Blackwood River and at Black Point on the South Coast, near Silver Mount. These may be of Middle or Upper Kainozoic age, and may belong to the same periods as those of South Australia and Victoria.

(vi) *Tasmania.* Basalt flows in many parts of the island overlie fluviatile and lacustrine deposits, and form deep leads. In the north-east, basalt flows occur near Branxholme and Derby. In the north-west of the island, a basalt sheet caps the coastal plateau, as at Wynyard and Burnie. The above may belong to the Older Kainozoic series. In many other districts Kainozoic basalts occur, but it is difficult to place them stratigraphically. To such belong the basalts of Sheffield, Conara, Barham Plains, and Bothwell. The extensive basalt sheets probably developed from fissure eruptions. Numerous alkali volcanic rocks in Tasmania may belong to the middle part of the Kainozoic period, as is the case in many areas on the mainland. Alkali basalts or trachy-dolerites with analcite and nepheline occur at Table Cape and the Nut at Circular Head. Small volcanic cones cut through the diabase at Shannon Tier, and consist of melilite nepheline basalt, and a similar rock occurs as a lava flow at Sandy Bay, near Hobart. The alkali rocks of Port Cygnet, Woodbridge, and Kettering cut the diabase, and are probably of Mid-Kainozoic age. They include tinguaites and solvabergite porphyries, and appear to consist of minor intrusions.

(B) Papua.

1. **Upper Kainozoic to recent Volcanic Rocks.** The volcanic rocks are known to comprise hornblende andesites and basalts. In the island of Misima (St. Aigan) are thin flows of trachyte. The Papuan lavas appear to belong to two volcanic zones in which the Aird Hills, a series of small volcanic cones about 200 miles north-west from Port Moresby, belong to the southern zone, and the other zone is parallel and adjacent to the northern coast of British Papua. The great extinct crater, Dayman, 9,500 feet high, belongs to this latter belt, as does Mount Victory, 6,000 feet high. The latter cone is interesting, as it is, so far as is known, the only active lava-producing cone in the Commonwealth, while the small island of Dobu (Goulvain) in the D'Entrecasteaux group is a volcanic cone from which steam is emitted.

(C) Summary.

The foregoing remarks bring to a close a rapid survey of past volcanic action in Australia. It has been noted that few of the geological periods in the history of the development of Australia have been entirely free from some kind of volcanic activity. Specially prominent periods of volcanic energy were the Cambrian in the Northern Territory and Victoria, and the Upper Palæozoic, including the Upper Silurian, Devonian, and Carboniferous periods in eastern Australia, especially in New South Wales and Victoria. The Mesozoic was mainly a period of repose in Australia, but at its close the big sills of diabase invaded Tasmania. From the lower Kainozoic to the present day, eastern Australia, including Queensland, New South Wales, Victoria, Tasmania and part of South Australia, has been at intervals the scene of immense volcanic activity. In Victoria and South Australia, the latest eruptions not only flooded wide areas with basaltic lavas, but in the later stages of explosive activity formed many hundreds of small and frequently well-preserved scoria and tuff cones or puys. Since then volcanic activity has become, for the time being, extinct on the mainland of the continent, and has shifted eastwards beyond the present continental borders, and now manifests itself at intervals along a line passing through Papua, the New Hebrides, and New Zealand.

NOTE.—Materials for this article have been taken from the publications of the Federal and State Geological Surveys, the Royal Societies of the various States, the Linnean Society of New South Wales, the Australasian Association for the Advancement of Science, the Federal and State handbooks for the British Association meeting in Australia in 1914, the Mining Handbook of West Australia, 1919, and from unpublished communications from Professor H. C. Richards of the University of Queensland, Mr. W. R. Browne of the University of Sydney, Dr. W. G. Woolnough, and the writer.

§ 7. Climate and Meteorology of Australia.*

1. Introductory.—In preceding Year Books some account was given of the history of Australian meteorology, including reference to the development of magnetic observations and the equipment for the determination of various climatological records. (See Year Book No. 3, pp. 79, 80.) In Year Book No. 4, pp. 84 and 87, will be found a short sketch of the creation and organisation of the Commonwealth Bureau of Meteorology and a résumé of the subjects dealt with at the Meteorological Conference of 1907. Space will not permit of the inclusion of this matter in the present issue.

2. Meteorological Publications.—The following publications are issued daily from the Central Meteorological Bureau, viz.:—(i) Weather charts. (ii) Rainfall maps. (iii) Bulletins, Victorian and Interstate, shewing pressure, temperature, wind, rain, cloud extent, and weather. Similar publications are also issued from the divisional offices in each of the State Capitals.

The Bulletins of Climatology are as follow:—No. 1.—A general discussion of the climate and meteorology of Australia, illustrated by one map and diagrams. No. 2.—A discussion of the rainfall over Australia during the ten years 1897–1906 compared with the normal, illustrated by one map. No. 3.—Notes and statistics of the remarkable flood rains over south-eastern Australia during the winter of 1909, illustrated by five maps and diagrams. No. 4.—A discussion of the monthly and seasonal rainfall over Australia, illustrated by one map and diagram. No. 5.—An investigation into the possibility of forecasting the approximate winter rainfall for Northern Victoria, illustrated by two diagrams. No. 6.—The physiography of the Federal Territory at Canberra, illustrated by a relief map and 21 plates. No. 7.—On the climate of the Yass-Canberra district, illustrated by one map. No. 8.—Physiography of Eastern Australia, with 28 text illustrations. No. 9.—The climate of Australia, with charts and diagrams, prepared for the Federal Handbook of Australia. No. 10.—Relation between cirrus directions as observed in Melbourne and the approach of the various storm systems affecting Victoria, illustrated by a number of charts. No. 11.—The climatic control of Australian production, with 43 illustrations. No. 12.—A graphical method of shewing the daily weather, and especially cloud types, with two graphs. No. 13.—Initial investigations in the upper air of Australia, with 35 illustrations. No. 14.—The control of settlement by humidity and temperature, with 21 charts and diagrams. No. 15.—Tropical Control of Australian Rainfall, illustrated by maps and diagrams.

Commencing with January, 1910, the "Australian Monthly Weather Report," containing statistical records from representative selected stations, with rain maps and diagrams, &c., is being published. Complete rainfall and other climatological data are published in annual volumes of meteorological statistics for each State separately.

The first text book of Australian meteorology, "Climate and Weather of Australia," was published in 1913.

3. General Description of Australia.—In the general description of Australia, page 39, it is pointed out that a considerable portion (0.530) of three divisions of the Australian Commonwealth is north of the tropic of Capricorn, that is to say, within the States of Queensland and Western Australia, and the Northern Territory, no less than 1,149,320† square miles belong to the tropical zone, and 1,020,720 to the temperate zone. The whole area of the Commonwealth within the temperate zone, however, is 1,825,261‡ square miles, thus the tropical part is about 0.386, or about five-thirteenths of the whole, or the "temperate" region is half as large again as the "tropical" (more accurately 1.591). By reason of its insular geographical position, and the absence of striking physical features, Australia is, on the whole, less subject to extremes of weather than are regions of similar area in other parts of the globe; and latitude for latitude Australia is, on the whole, more temperate.

The altitudes of the surface of Australia range up to a little over 7,300 feet, hence its climate embraces a great many features, from the characteristically tropical to what is essentially alpine, a fact indicated in some measure by the name Australian Alps given to the southern portion of the great Dividing Range.

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* Prepared from data supplied by the Commonwealth Meteorologist, H. A. Hunt, Esquire, F.R. Met. Soc.

† In the article "Australia" in the Encyclopædia Britannica, Vol. II., p. 946 (XI. edition), this area is given as 1,145,000 square miles.

‡ Given as 1,801,700 square miles in the work above quoted, where, however, the statistics are said "to refer only to the continental States of the Federation, not to Tasmania."

While on the coast the rainfall is often abundant and the atmosphere moist, in some portions of the interior the rainfall is very limited, and the atmosphere dry. The distribution of forest, as might be expected, and its climatic influence, is consequently very variable. In the interior there are on the one hand fine belts of trees, on the other there are large areas which are treeless, and where the air is hot and parched in summer. Again, on the coast, even as far south as latitude 35°, the vegetation is tropical in its luxuriance, and also somewhat so in character. Climatologically, therefore, Australia may be said to present a great variety of features. The various climatological characteristics will be referred to in detail.

4. **Meteorological Divisions.**—The Commonwealth Meteorologist has divided Australia, for climatological and meteorological purposes, into five divisions. The boundaries between these may be thus defined :—(*a*) Between divisions I. and II., the boundary between South and Western Australia, viz., the 120th meridian of east longitude : (*b*) between divisions II. and III., starting at the Gulf of Carpentaria, along the Norman River to Normanton, thence a straight line to Wilcannia on the Darling River, New South Wales ; (*c*) between divisions II. and IV., from Wilcannia along the Darling River to its junction with the Murray ; (*d*) between divisions II. and V., from the junction of the Darling and Murray Rivers, along the latter to Encounter Bay ; (*e*) between divisions III. and IV., starting at Wilcannia, along the Darling, Barwon, and Dumaresq Rivers to the Great Dividing Range, and along that range and along the watershed between the Clarence and Richmond Rivers to Evans Head on the east coast of Australia ; (*f*) between divisions IV. and V., from the junction of the Darling and Murray Rivers along the latter to its junction with the Murrumbidgee, along the Murrumbidgee to the Tumut River, and along the Tumut River to Tumut, thence a straight line to Cape Howe ; (*g*) division V. includes Tasmania.

The population included within these boundaries at the Census of the 3rd April, 1911, was approximately as follows :—

Division	I.	II.	III.	IV.	V.
Population	282,000	429,000	607,000	1,540,000	1,597,000

In these divisions the order in which the capitals occur is as follows :—(i) Perth, (ii) Adelaide, (iii) Brisbane, (iv) Sydney, (v) Melbourne and Hobart ; and for that reason the climatological and meteorological statistics will be set forth in the indicated order in this publication.

Special Climatological Stations. The latitudes, longitudes, and altitudes of special stations, the climatological features of which are graphically represented hereinafter, are as follows :—

SPECIAL CLIMATOLOGICAL STATIONS.

Locality.	Height above Sea Level.	Latitude. S.		Longitude. E.		Locality.	Height above Sea Level.	Latitude. S.		Longitude. E.	
	Feet.	deg.	min.	deg.	min.		Feet.	deg.	min.	deg.	min.
Perth ..	197	31	57	115	50	Darwin ..	97	12	28	130	51
Adelaide ..	140	34	56	138	35	Daly Waters	691	16	16	133	23
Brisbane ..	137	27	28	153	2	Alice Springs	1,926	23	38	133	37
Sydney ..	133	33	52	151	12	Dubbo ..	870	32	18	148	35
Melbourne ..	115	37	49	144	58	Laverton, W.A.	1,530	28	40	122	23
Hobart ..	177	42	53	147	20	Coolgardie ..	1,389	30	57	121	10

5. **Temperatures.**—In respect of Australian temperatures generally it may be pointed out that the isotherm for 70° Fahrenheit extends in South America and South Africa as far south as latitude 33°, while in Australia it reaches only as far south as latitude 30°, thus shewing that, on the whole, Australia has a more temperate climate when compared latitude for latitude with other places in the Southern Hemisphere.

The comparison is even more favourable when the Northern Hemisphere is included therein, for in the United States the 70° isotherm extends in several of the western States as far north as latitude 41°. In Europe the same isotherm reaches almost to the southern shores of Spain, passing, however, afterwards along the northern shores of Africa till it reaches the Red Sea, when it bends northward along the eastern shore of the Mediterranean till it reaches Syria. In Asia nearly the whole of the land area south of latitude 40° N. has a higher isothermal value than 70°.

The extreme range of shade temperatures in summer and winter in a very large part of Australia amounts to probably only 81°. In Siberia, in Asia, the similar range is no less than 171°, and in North America 153°, or approximately double the Australian range.

Along the northern shores of the Australian continent the temperatures are very equable. At Darwin, for example, the difference in the means for the hottest and coldest months is only 8.3°, and the extreme readings for the year, that is, the highest maximum in the hottest month and the lowest reading in the coldest month, shew a difference of under 50°.

Coming southward the extreme range of temperature increases gradually on the coast, and in a more pronounced way inland.

The detailed temperature results for the several capitals of the States of Australia are shewn in the Climatological Tables hereinafter.

(i) *Hottest and Coldest Parts.* A comparison of the temperatures recorded at coast and inland stations shews that, in Australia as in other continents, the range increases with increasing distance from the coast.

In the interior of Australia, and during exceptionally dry summers, the temperature occasionally reaches or exceeds 120° in the shade, and during the dry winters the major portion of the country to the south of the tropics is subject to ground frosts. An exact knowledge of temperature disposition cannot be determined until the interior becomes more settled, but from data procurable it would appear that the hottest area of the continent is situated in the northern part of Western Australia about the Marble Bar and Nullagine goldfields, where the maximum shade temperature during the summer sometimes exceeds 100° for days, and even weeks, continuously. The coldest part of the Commonwealth is the extreme south-east of New South Wales and extreme east of Victoria, namely, the region of the Australian Alps. Here the temperature seldom, if ever, reaches 100°, even in the hottest of seasons.

Tasmania, although occasionally hot winds may cross the Straits and cause the temperature to rise to 100° in the low-lying parts, as a whole enjoys a most moderate and equable range of temperature throughout the year.

(ii) *Monthly Maximum and Minimum Temperatures.* The mean monthly maximum and minimum temperatures can be best shewn by means of graphs, which exhibit the nature of the fluctuation of each for the entire year. In the diagram (on page 65) for nine representative places in Australia, the upper heavy curves shew the mean maximum, the lower heavy curves the mean minimum temperatures based upon daily observations. On the same diagram the thin curves shew the relative humidities (see next paragraph).

6. **Relative Humidity.**—Next after temperature the degree of humidity may be regarded as of great importance as an element of climate; and the characteristic differences of relative humidity between the various capitals of Australia call for special remark. For six representative places the variations of humidity are shewn on the graph on page 65, which gives results based upon daily observations of the dry and wet bulb thermometers. Hitherto difficulties have been experienced in many parts of Australia in obtaining satisfactory observations for a continuous period of any length. For this reason it has been thought expedient to refer to the record of humidity at first order stations only, where the results are thoroughly reliable. Throughout, the degree of humidity given will be what is known as *relative humidity*, that is, the percentage of aqueous vapour actually existing to the total possible if the atmosphere were saturated.

The detailed humidity results for the several State capitals are given in the Climatological Tables hereinafter. From these, it is seen that, in respect of relative humidity, Sydney and Hobart have the first place, while Brisbane, Melbourne, Perth, and

Adelaide follow in the order stated, Adelaide being the driest. The graphs on page 65 shew the annual variations in humidity. It will be observed that the *relative* humidity is ordinarily but not invariably great when the temperature is low.

7. **Evaporation.**—The rate and quantity of evaporation in any territory is influenced by the prevailing temperature, and by atmospheric humidity, pressure and movement. In Australia the question is of perhaps more than ordinary importance, since in its drier regions water has often to be conserved in "tanks"* and dams. The magnitude of the economic loss by evaporation will be appreciated from the records on pages 67 and 76 to 81, which shew that the yearly amount varies from about 32 inches at Hobart to 95 inches at Alice Springs in the centre of the Continent.

(i) *Monthly Evaporation Curves.* The curves shewing the mean monthly evaporation in various parts of the Commonwealth will disclose how characteristically different are the amounts for the several months in different localities. The evaporation for characteristic places is shewn on the diagram shewing also rainfalls (see page 66).

(ii) *Loss by Evaporation.* In the interior of Australia the possible evaporation is greater than the actual rainfall. Since, therefore, the loss by evaporation depends largely on the exposed area, tanks and dams so designed that the surface shall be a minimum are advantageous. Similarly, the more protected from the direct rays of the sun and from winds, by means of suitable tree planting, the less will be the loss by evaporation: these matters are of more than ordinary concern in the drier districts of Australia.

8. **Rainfall.**—As even a casual reference to climatological maps, indicating the distribution of rainfall and prevailing direction of wind, would clearly shew, the rainfall of any region is determined mainly by the direction and route of the prevailing winds, by the varying temperatures of the earth's surface over which they blow, and by the physiographical features generally.

Australia lies within the zone of the south-east trade and prevailing westerly winds. The southern limit of the south-east trade strikes the eastern shores at about 30° south latitude, and with very few exceptions, the heaviest rains of the Australian continent are precipitated along the Pacific slopes to the north of that latitude, the varying quantities being more or less regulated by the differences in elevation of the shores and of the chain of mountains, upon which the rain-laden winds blow, from the New South Wales northern border to Thursday Island. The converse effect is exemplified on the north-west coast of Western Australia, where the prevailing winds, blowing from the interior of the continent instead of from the ocean, result in the lightest coastal rain in Australia.

The westerly winds, which skirt the southern shores, are responsible for the very reliable, although generally light to moderate, rains enjoyed by the south-western portion of Western Australia, by the south-eastern agricultural areas of South Australia, by a great part of Victoria, and by the whole of Tasmania.

(i) *Factors determining Distribution and Intensity of Rainfall.*

(ii) *Time of Rainfall.*

In Year Book No. 6 (see pp. 72 to 74) some notes were given of the various factors governing the distribution, intensity and period of Australian rainfall.

(iii) *Wettest and Driest Regions.* The wettest known part of Australia is on the north-east coast of Queensland, between Port Douglas and Cardwell, where three stations situated on, or adjacent to, the Johnstone and Russell Rivers have an average annual rainfall of between 148 and 166 inches. The maximum and minimum falls there are:—Goondi, 241.53 in 1894 and 67.88 inches in 1915, or a range of 173.65 inches; Innisfail, 211.24 in 1894 and 69.87 inches in 1902, or a range of 141.37 inches; Harvey's Creek, 238.45 in 1901 and 80.47 inches in 1902, or a range of 157.98 inches.

On four occasions more than 200 inches have been recorded at Goondi, the last of these being in 1910, when 204.82 inches were registered. The record at this station covers a period of 34 years.

Harvey's Creek in the shorter period of 21 years has twice exceeded 200 inches, the total for 1910 being 201.28 inches.

The driest known part of the continent is about the Lake Eyre district in South Australia (the only part of the continent below sea level), where the annual average is but 5 inches, and where the fall rarely exceeds 10 inches for the twelve months.

* In Australia artificial storage ponds or reservoirs are called "tanks."

The inland districts of Western Australia were at one time regarded as the driest part of Australia, but authentic observations in recent years over the settled districts in the east of that State shew that the annual average is from 10 to 12 inches.

(iv) *Quantities and Distribution of Rainfall generally.* The departure from the normal rainfall increases greatly and progressively from the southern to the northern shores of the continent, and similarly also at all parts of the continent subject to capricious monsoonal rains, as the comparisons hereunder will shew. The general distribution is best seen from the map on page 72, shewing the areas subject to average annual rainfalls lying between certain limits. The areas enjoying varying quantities of rainfall determined from the latest available information are shown in the following table :—

DISTRIBUTION OF AVERAGE RAINFALL.

Average Annual Rainfall.	N.S.W. (a)	Victoria.	Queensland.	South Australia.	Northern Territory	Western Australia.	Tasmania. (b)	Commonwealth. (b)
	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.
Under 10 inches	44,997	nil	91,012	317,600	138,190	513,653	nil	1,105,452
10—15 ,,	77,268	19,912	87,489	33,405	141,570	232,815	nil	592,459
15—20 ,,	57,639	12,626	112,738	14,190	62,920	89,922	937	350,972
20—30 ,,	77,202	29,317	213,779	13,827	93,470	95,404	7,559	530,558
30—40 ,,	30,700	14,029	69,880	984	40,690	40,750	4,588	201,621
Over 40 ,,	22,566	12,000	95,602	64	46,780	3,376	10,101	190,489
Total area ..	310,372	87,884	670,500	380,070	523,620	975,920	26,215	2,974,581

(a) Including Federal Capital Territory. (b) Over an area of 3,030 square miles no records are available.

Referring first to the capital cities, the complete records of which are given on the following page, it is seen that Sydney with a normal rainfall of 48.34 inches occupies the chief place, Brisbane, Perth, Melbourne, Hobart and Adelaide following in that order, Adelaide with 21.03 inches being the driest. The extreme range from the wettest to the driest year is greatest at Brisbane (72.09 inches) and least at Adelaide (19.48 inches).

In order to shew how the rainfall is distributed throughout the year in various parts of the continent, the figures of representative towns have been selected. (See map on page 71.) Darwin, typical of the Northern Territory, shews that in that region nearly the whole of the rainfall occurs in the summer months, while little or none falls in the middle of the year. The figures for Perth, as representing the south-western part of the continent, are the reverse, for while the summer months are dry, the winter ones are very wet. In Melbourne and Hobart the rain is fairly well distributed throughout the twelve months, with a maximum in October in the former, and in November in the latter. The records at Alice Springs and Daly Waters indicate that in the central parts of Australia the wettest months are in the summer and autumn. In Queensland, as in the Northern Territory, the heaviest rains fall in the summer months, but good averages are also maintained during the other seasons.

On the coast of New South Wales, the first six months of the year are the wettest, with a maximum in the autumn; the averages during the last six months are fair and moderately uniform. In general it may be said that one-third of the area of the continent, principally in the eastern and northern parts, enjoys an annual average rainfall of from 20 to 50 or more inches, the remaining two-thirds receiving generally from about 10 to 20 inches.

(v) *Curves of Rainfall and Evaporation.* The relative amounts of rainfall and evaporation at different times through the year are best seen by referring to the graphs for a number of characteristic places. (See page 66.) It will be recognised at once how large is the evaporation when water is fully exposed to the direct rays of the sun, and to wind.

(vi) *Tables of Rainfall.* The table of rainfall for a long period of years for each of the various Australian capitals affords information as to the variability of the fall in successive years, and the list of the more remarkable falls furnishes information as to what may be expected on particular occasions.

RAINFALL AT THE AUSTRALIAN CAPITALS, 1840 TO 1920.

Year.	Perth. Amount.	Perth. No. of Days.	Perth. 10 Years' Means.	Adelaide. Amount.	Adelaide. No. of Days.	Adelaide. 10 Years' Means.	Brisbane. Amount.	Brisbane. No. of Days.	Brisbane. 10 Years' Means.	Sydney. Amount.	Sydney. No. of Days.	Sydney. 10 Years' Means.	Melbourne. Amount.	Melbourne. No. of Days.	Melbourne. 10 Years' Means.	Hobart. Amount.	Hobart. No. of Days.	Hobart. 10 Years' Means.
	in.		in.	in.		in.	in.		in.	in.		in.	in.		in.	in		in.
840	..	..	..	24.23	99	..	29.32	..	..	58.52	150	..	22.57	..	..	..	..	..
1	..	..	..	17.96	93	..	49.31	..	..	76.31	142	..	30.18	..	..	13.06	74	..
2	..	..	..	20.32	122	..	28.81	..	..	48.32	138	..	31.10	..	..	23.60	88	..
3	..	..	..	17.19	104	..	51.67	..	..	62.78	168	..	21.54	..	..	13.43	87	..
4	..	..	..	16.88	136	..	63.20	..	..	70.66	156	..	30.74	..	..	26.25	94	..
5	..	..	..	18.83	125	..	39.09	..	..	62.[illegible]1	133	..	23.93	..	..	16.68	76	..
6	..	..	..	26.89	114	..	81.41	..	41.83	43.83	139	..	30.53	..	..	21.96	99	..
7	..	..	..	27.61	109	..	..	..	(7 yr.)	42.81	142	..	30.18	..	..	13.86	89	..
8	..	..	..	19.74	114	21.07	42.59	..	..	59.17	155	56.27	33.15	..	28.22	23.62	115	19.24
9	..	..	..	25.44	110	(9 yr.)	..	..	..	21.49	140	(9 yr.)	44.25	..	(9 yr.)	33.52	103	(8 yr.)
850	..	..	..	19.56	84	..	..	..	..	44.88	157	..	26.98	..	..	14.51	70	..
1	..	..	..	30.86	128	..	..	..	..	35.14	142	..	..	..	..	17.98	107	..
2	..	..	..	27.44	118	..	..	..	..	43.70	143	..	..	..	..	23.62	119	..
3	..	..	..	27.08	128	..	..	..	..	46.12	130	..	..	..	..	14.52	113	..
4	..	..	..	15.35	105	..	..	..	..	20.29	136	..	..	..	..	30.54	109	..
5	..	..	..	23.15	124	..	..	..	..	52.86	138	..	28.21	..	..	18.25	131	..
6	..	..	..	24.93	118	..	..	..	..	43.31	116	..	29.76	134	..	22.73	152	..
7	..	..	..	22.15	105	..	..	..	..	50.95	135	..	28.90	138	..	17.14	113	..
8	..	..	..	21.55	107	23.75	43.00	..	..	39.60	129	40.75	26.01	158	..	33.07	129	22.59
9	..	..	..	14.85	95	..	35.00	..	..	42.01	137	..	21.82	156	..	23.31	159	..
860	..	..	..	19.67	119	..	54.63	144	..	82.76	180	..	25.38	133	..	21.05	142	..
1	..	..	..	24.04	147	..	69.45	1[illegible]5	..	59.36	157	..	29.16	159	..	28.19	167	..
2	..	..	..	21.85	110	..	28.27	98	..	23.99	108	..	22.08	139	..	21.72	148	..
3	..	..	..	23.68	145	..	68.83	146	..	47.08	152	..	36.42	105	..	40.67	163	..
4	..	..	..	19.75	121	..	47.00	114	..	69.12	185	..	27.40	144	..	28.11	142	..
5	..	..	..	15.51	108	..	24.11	52	..	38.15	140	..	15.94	119	..	23.07	146	..
6	..	..	..	20.11	116	..	51.18	142	..	36.91	156	..	22.41	107	..	23.55	127	..
7	..	..	..	19.05	112	..	61.04	112	..	59.56	140	..	25.79	133	..	22.27	139	..
8	..	..	..	19.99	113	19.85	35.98	110	47.55	42.98	161	49.99	18.27	120	24.47	18.08	112	25.00
9	..	..	..	14.74	117	..	54.39	114	..	48.00	150	..	24.58	129	..	23.87	131	..
870	..	..	..	23.84	119	..	79.00	154	..	64.47	179	..	33.77	129	..	27.53	123	..
1	..	..	..	23.25	137	..	45.45	119	..	52.27	141	..	30.17	125	..	18.25	131	..
2	..	..	..	22.66	146	..	49.22	131	..	37.12	161	..	32.52	136	..	31.76	160	..
3	..	..	..	21.00	139	..	62.02	138	..	73.40	176	..	25.61	134	..	23.43	157	..
4	..	..	..	17.23	127	..	38.71	135	..	63.60	173	..	28.10	134	..	24.09	138	..
5	..	..	..	29.21	157	..	67.03	162	..	46.25	153	..	32.87	158	..	29.25	182	..
6	28.73	100	..	13.43	110	..	53.42	130	..	45.69	156	..	24.04	134	..	23.63	173	..
7	20.48	103	..	24.95	135	..	30.28	119	..	59.66	147	..	24.10	124	..	20.82	165	..
8	39.72	143	29.64	22.08	112	21.24	56.33	134	53.59	49.77	129	54.03	25.36	116	28.11	29.76	183	26.24
9	41.34	106	(3 yr.)	20.69	130	..	67.30	157	..	63.19	167	..	19.28	127	..	21.07	210	..
880	31.79	116	..	22.48	142	..	49.12	134	..	29.51	142	..	28.48	147	..	..	..	..
1	24.78	101	..	18.02	135	..	29.39	117	..	40.99	163	..	24.08	134	..	..	..	..
2	35.68	109	..	15.70	134	..	42.62	121	..	42.28	112	..	22.40	131	..	30.69	..	..
3	39.65	122	..	26.76	161	..	32.22	114	..	46.92	157	..	23.71	130	..	24.05	161	..
4	31.96	92	..	18.74	138	..	43.49	136	..	44.04	159	..	25.85	128	..	21.55	171	..
5	33.44	110	..	15.89	133	..	26.85	112	..	39.91	145	..	26.94	123	..	28.29	176	..
6	28.90	89	..	14.42	141	..	53.66	152	..	39.43	152	..	24.00	128	..	21.39	189	..
7	37.52	105	..	25.70	164	..	81.54	242	..	60.16	190	..	32.39	153	..	21.21	174	..
8	27.83	117	33.29	14.55	131	19.30	33.08	143	45.93	23.01	132	42.94	19.42	123	24.66	18.45	151	23.71
9	39.96	123	..	30.87	143	..	49.36	155	..	57.16	186	..	27.14	125	..	30.80	180	(8 yr.)
890	46.73	126	..	25.78	139	..	73.02	162	..	81.42	184	..	24.24	140	..	27.51	173	..
1	30.33	93	..	14.01	113	..	41.68	143	..	55.30	200	..	26.73	126	..	23.25	160	..
2	31.23	122	..	21.53	137	..	64.98	146	..	69.26	189	..	21.96	124	..	18.62	120	..
3	40.12	145	..	21.49	129	..	88.26	147	..	49.90	209	..	26.80	140	..	27.46	146	..
4	23.72	103	..	20.78	134	..	44.02	143	..	38.22	188	..	22.60	138	..	27.39	141	..
5	23.01	123	..	21.28	130	..	59.11	105	..	31.86	170	..	17.04	131	..	25.40	121	..
6	31.50	103	..	15.17	121	..	44.97	121	..	42.40	157	..	25.16	124	..	21.61	135	..
7	27.17	106	..	15.42	119	..	42.53	115	..	42.52	136	..	25.85	117	..	20.45	153	..
8	31.76	118	33.55	20.75	116	20.71	60.06	131	56.80	43.17	143	51.12	15.61	102	23.01	20.40	164	24.29
9	32.40	107	..	18.84	119	..	38.85	141	..	55.90	174	..	28.87	116	..	20.68	170	..
900	36.61	124	..	21.68	133	..	34.41	110	..	66.54	170	..	28.09	139	..	19.14	135	..
1	36.75	122	..	18.01	124	..	38.48	110	..	40.10	149	..	27.45	113	..	25.11	149	..
2	27.06	93	..	16.02	123	..	16.17	87	..	43.07	180	..	23.08	102	..	21.85	150	..
3	35.60	140	..	25.47	134	..	49.27	136	..	38.62	173	..	28.43	130	..	25.86	139	..
4	34.35	125	..	20.31	117	..	33.23	124	..	45.93	158	..	29.72	128	..	22.41	139	..
5	34.61	116	..	22.28	131	..	36.76	108	..	35.03	145	..	25.64	129	..	32.09	168	..
6	32.37	121	..	26.51	127	..	42.85	125	..	31.89	160	..	22.29	114	..	23.31	155	..
7	40.12	132	..	17.78	125	..	31.46	119	..	31.32	132	..	22.26	102	..	25.92	160	..
8	30.52	106	34.05	24.56	125	21.15	44.01	125	36.55	45.65	167	43.41	17.72	130	25.36	16.50	148	23.29
9	39.11	107	..	27.69	138	..	34.06	111	..	32.45	177	..	25.86	171	..	27.29	170	..

RAINFALL AT THE AUSTRALIAN CAPITALS—*continued.*

Year.	Perth. Amount.	Perth. No. of Days.	Perth. 10 Years' Means.	Adelaide. Amount.	Adelaide. No. of Days.	Adelaide. 10 Years' Means.	Brisbane. Amount.	Brisbane. No. of Days.	Brisbane. 10 Years' Means.	Sydney. Amount.	Sydney. No. of Days.	Sydney. 10 Years' Means.	Melbourne. Amount.	Melbourne. No. of Days.	Melbourne. 10 Years' Means.	Hobart. Amount.	Hobart. No. of Days.	Hobart. 10 Years'
	in.		in.	in.		in.	in.		in.	in.		in.	in.		in.	in.		i
1910	37.02	135	..	24.62	110	..	49.00	133	..	46.91	160	..	24.61	167	..	25.22	205	.
11	23.38	108	..	15.99	127	..	35.21	128	..	50.24	155	..	36.61	168	..	26.78	193	.
12	27.85	123	..	19.57	116	..	41.30	114	..	47.51	172	..	20.37	157	..	23.14	181	.
13	38.28	141	..	18.16	102	..	40.81	115	..	57.70	141	..	21.17	157	..	19.36	165	.
14	20.21	128	..	11.39	91	..	33.09	141	..	56.42	149	..	18.57	129	..	15.42	154	.
15	43.61	164	..	19.38	117	..	25.66	93	..	34.83	117	..	20.95	167	..	20.91	196	.
16	35.16	128	..	28.16	142	..	52.80	136	..	44.91	161	..	38.04	170	..	43.39	203	.
17	45.64	146	..	28.90	153	..	40.92	127	..	52.40	151	..	30.57	171	..	30.62	214	.
18	39.58	138	34.98	17.41	107	21.13	24.95	121	37.87	42.99	149	46.64	27.13	160	26.30	26.04	179	25
19	30.66	120	..	17.21	108	..	19.36	96	..	58.71	152	..	24.89	141	..	22.48	153	.
20	40.35	124	..	26.70	119	..	39.72	122	..	43.42	159	..	28.27	162	..	18.00	182	.
Aver.	..	..	33.75	..	..	21.03	..	..	45.34	..	..	48.34	..	..	26.20	..	..	23
No. of Yrs.			(45)			(82)			(71)			(81)			(77)			(7

NOTE.—The above average Rainfall figures for Brisbane, Sydney, and Melbourne differ slightly from the m annual falls given in the Climatological Tables on pp. 76-81, which are for a less number of years.

9. **Remarkable Falls of Rain.**—The following are the more remarkable falls of rain in the States of New South Wales, Queensland, Western Australia, Victoria, and Tasmania, and in the Northern Territory, which have occurred within a period of twenty-four hours:—

HEAVY RAINFALLS, NEW SOUTH WALES, UP TO 1920, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Anthony ..	28 Mar., 1887	17.14	Madden's Creek ..	13 Jan., 1911	18.68
"	15 Jan., 1890	13.13	Maitland W. ..	9 Mar., 1893	14.79
Araluen	15 Feb., 1898	13.36	Major's Creek ..	14 Feb., 1898	12.32
Bega	27 " 1919	17.88	Marrickville ..	9 Mar., 1913	10.40
Bellingen ..	4 Mar., "	13.16	Morpeth.. ..	9 " 1893	21.52
Berry	13 Jan., 1911	12.05	Mount Kembla ..	13 Jan., 1911	18.25
Billambil.. ..	14 Mar., 1894	12.94	Mt. Pleasant ..	24 Mar., 1914	10.30
Bomaderry ..	13 Jan., 1911	13.03	Murwillumbah ..	29 May, 1919	10.10
Broger's Creek ..	14 Feb., 1898	20.05	Nepean Tunnel ..	14 Feb., 1898	12.30
" " ..	19 July, 1910	12.22	Nothercote ..	27 " 1919	14.39
" " ..	13 Jan., 1911	20.83	Nowra	13 Jan., 1911	13.00
" " ..	24 July, 1918	10.30	Numbugga ..	27 Feb., 1919	17.87
" " ..	26 Feb., 1919	11.01	Orara Upper ..	4 Mar., 1919	14.00
*Broger's Creek ..	13 Dec., 1920	10.50	Padstow Park ..	9 " 1913	10.64
Bulli Mountain ..	13 " 1898	17.14	Prospect ..	28 May, 1889	12.37
Burragate ..	27 " 1919	16.38	Raleigh Central ..	10 Nov., 1917	13.20
Camden Haven ..	22 Jan., 1895	12.23	Richmond ..	28 May, 1889	12.18
Candelo	27 Feb., 1919	18.58	Rosemount ..	23 Mar., 1914	12.62
Castle Hill ..	28 May, 1889	13.49	Rooty Hill ..	27 May, 1889	11.85
Colombo Lyttleton	5 Mar., 1893	12.17	Taree	28 Feb., 1892	12.24
Comboyne ..	18 May, 1914	10.68	Terara	26 " 1873	12.57
Condong ..	27 Mar., 1887	18.66	The Hill(Shell Harb.)	24 Mar., 1914	12.00
Cordeaux River ..	14 Feb., 1898	22.58	Tomago ..	9 " 1893	13.76
" " ..	13 Jan., 1911	14.52	Tongarra Farm ..	14 Feb., 1898	15.12
Dapto West ..	14 Feb., 1898	12.05	Toothdale ..	27 " 1919	13.51
Dunheved ..	28 May, 1889	12.40	Towamba ..	5 Mar., 1893	20.00
Dunoon	9 Nov., 1917	10.02	Tweed River Heads	9 Nov., 1917	13.50
Eden	27 Feb., 1919	11.05	Sherwood ..	17 June, 1914	10.00
Holy Flat ..	12 Mar., 1887	12.00	Stockyard Mt. ..	24 Mar., "	10.72
" " ..	28 Feb., 1892	12.24	South Head (near Sydney) ..	29 Apr., 1841	20.12
Jamberoo ..	23 Mar., 1914	10.22	" " ..	16 Oct., 1844	20.41
" ..	24 " "	11.28	Unanderra ..	24 Mar., 1914	11.68
Katoomba ..	7 Apr., 1913	10.50	Urunga	9 Nov., 1917	10.29
Kembla Heights ..	13 Jan., 1911	17.46	Verona	27 Feb., 1919	10.91
Kingswood ..	26 Feb., 1919	13.55	Wollongong ..	24 Mar., 1914	12.50
Leconfield ..	9 Mar., 1893	14.53			

* From 9th to 13th Dec.=34.75.

HEAVY RAINFALLS, QUEENSLAND, UP TO 1920, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.
		ins.
Adelaide Park ..	23 Jan., 1918	12.00
Allomba (Cairns) ..	30 ,, 1913	13.50
Anglesey	26 Dec., 1909	18.20
,, ...	10 Feb., 1915	12.00
Atherton (Cairns) ..	31 Jan., 1913	16.69
Ayr	20 Sep., 1890	14.58
Babinda (Cairns) ..	31 Jan., 1913	12.79
,, ,, ..	1 Feb., ..	20.51
,, ,, ..	24 Jan., 1916	22.30
,, ,, ..	25 ,, ..	13.45
,, ,, ..	19 ,, 1918	13.53
,, ,, ..	21 Apr., 1920	16.05
Banyan (Cardwell)	31 ,, 1913	13.79
Barrine (Cairns) ..	31 ,, ,,	13.34
Batheaston ..	27 Dec., 1916	10.00
Bloomsbury ..	14 Feb., 1893	17.40
,, ..	10 Jan., 1901	16.62
Blue Mountain ..	22 ,, 1918	13.00
,, ,, ..	23 ,, ,,	13.00
Bowen	13 Feb., 1893	14.65
Boynedale ..	9 ,, 1915	11.20
Bracewell ..	9 ,, ..	11.59
Brisbane ..	21 Jan., 1887	18.31
Bromby Park (Bowen)	14 Feb., 1893	13.28
Brookfield ..	14 Mar., 1908	14.95
Budgrim Mountain	11 Jan., 1898	26.20
Bundaberg ..	16 ,, 1913	16.94
Burketown ..	15 ,, 1891	13.58
,, ..	12 Mar., 1903	14.52
Burnett Head (Bundaberg) ..	16 Jan., 1913	15.22
Burpengary ..	10 Feb., 1915	11.11
Bustard Head ..	17 Jan., 1913	14.93
Cairns	11 Feb., 1889	14.74
,, ...	21 Apr., ,,	12.40
,, ...	5 ,, 1891	14.08
,, ...	11 Feb., 1911	15.17
,, ...	2 Apr., ,,	20.16
,, ...	31 Jan., 1913	13.94
,, ...	24 ,, 1916	12.28
Calliope ..	9 Feb., 1915	12.09
Cape Grafton ..	5 Mar., 1896	13.37
Carbrook ..	11 Jan., 1918	14.03
,, ..	23 ,, ,,	22.66
,, ..	24 ,, ,,	15.77
Cardwell ..	30 Dec., 1889	12.00
,, ..	23 Mar., 1890	12.00
,, ..	18 ,, 1904	18.24
,, ..	3 Apr., 1911	12.84
Carmilla	22 Jan., 1918	13.92
,, ...	23 ,, ,,	15.92
,, ...	24 ,, ,,	13.73
Clare	26 ,, 1896	15.30
Clermont ..	28 Dec., 1916	12.28
Coen	17 Feb., 1914	12.03
Collaroy ..	30 Jan., 1896	14.25
,, ..	28 Dec., 1916	12.79
,, ..	22 Jan., 1918	11.17

Name of Town or Locality.	Date.	Amnt.
		ins.
Collaroy ..	23 Jan., 1918	18.06
Cooktown ..	22 ,, 1903	12.49
,, ..	23 ,, 1914	13.98
Cooran	1 Feb., 1893	13.62
,, ...	26 Dec., 1908	14.08
Cooroy	9 June, 1893	13.60
,, ...	10 Jan., 1898	13.50
Crohamhurst (Blackall Range)	2 Feb., 1893	35.71
,, ,, ..	9 June, ,,	13.31
,, ,, ..	9 Jan., 1898	19.55
,, ,, ..	6 Mar., ,,	16.01
,, ,, ..	26 Dec., 1909	13.85
,, ,, ..	10 Feb., 1915	12.98
Crow's Nest ..	2 Aug., 1908	11.17
Croydon	29 Jan., ..	15.00
Cryna (Beaudesert)	21 ,, 1887	14.00
Dungeness ..	16 Mar., 1893	22.17
,, ..	17 Apr., 1894	14.00
Dunira	9 Jan., 1898	18.45
,, ...	6 Mar., ,,	15.95
Eddington (Clonc'ry)	23 Jan., 1891	10.33
Emscoto Farm ..	10 Feb., 1915	13.22
Emu Park ..	18 Jan., 1913	12.75
Enoggera Railway	14 Mar., 1908	12.14
Ernest Junction ..	14 ,, ,,	13.00
Fairymead Plantation (Bundaberg)	16 Jan., 1913	15.32
Finch Hatton ..	23 ,, 1918	11.06
,, ,, ..	11 Mar., ,,	11.31
Flat Top Island ..	22 Dec., 1909	12.96
Floraville ..	6 Jan., 1897	10.79
,, ..	11 Mar., 1903	12.86
Flying Fish Point ..	7 Apr., 1912	16.06
,, ,, ..	31 Jan., 1913	16.10
Gatcombe Head (Gladstone) ..	18 ,, ,,	12.88
Gin Gin	16 ,, 1905	13.61
,, ...	16 ,, 1913	12.27
Gladstone ..	18 Feb., 1888	12.37
,, ..	31 Jan., 1893	14.62
,, ..	4 Feb., 1911	18.83
,, ..	9 ,, 1915	10.10
Glen Boughton ..	5 Apr., 1894	18.50
,, ,, ..	31 Jan., 1913	14.92
,, ,, ..	24 ,, 1916	14.02
Glen Prairie ..	18 Apr., 1904	12.18
Gold Creek Reservoir	14 Mar., 1908	12.50
Goldsbor'ugh (Cairns)	31 Jan., 1913	19.92
,, ,,	1 Feb., ,,	12.22
Goodwood (Bund'b'g)	16 Jan., ..	13.07
Goondi Mill (Innisfail)	6 Apr., 1894	15.69
,, ,,	18 ,, 1899	14.78
,, ,,	24 Jan., 1900	13.30
,, ,,	29 Dec., 1903	17.83
,, ,,	10 Feb., 1911	17.68
,, ,,	31 Mar., ,,	12.38

HEAVY RAINFALLS, QUEENSLAND—*continued.*

Name of Town or Locality.	Date.	Amnt.
		Ins.
Goondi Mill (Innisfail)	1 Apr., 1911	13.60
" "	6 " 1912	15.55
Goondi	30 Jan., 1913	24.10
Goorganga ..	23 " 1918	18.17
Granada (formerly Donaldson) ..	27 " 1891	11.29
" " ..	8 " 1911	13.50
" " ..	9 " "	14.30
Halifax	5 Feb., 1899	15.37
"	6 Jan., 1901	15.68
"	8 Apr., 1912	12.75
"	22 " 1920	12.59
Hambledon Mill ..	13 Jan., 1909	13.80
" " ..	2 " 1911	18.61
" " ..	10 Feb., "	13.97
" " ..	30 Mar., "	13.04
" " ..	31 " "	14.95
" " ..	1 Apr., "	19.62
" " ..	30 Jan., 1913	17.32
" " ..	20 Apr. 1920	14.08
Hampden ..	23 " 1918	17.30
" ..	24 " "	17.19
Harvey Creek ..	8 Mar., 1899	17.72
" " ..	25 Jan., 1900	12.52
" " ..	25 May, 1901	14.00
" " ..	14 Mar., 1903	12.10
" " ..	11 Jan., 1905	16.96
" " ..	28 " 1906	12.29
" " ..	14 " 1909	14.40
" " ..	3 " 1911	27.75
" " ..	11 Feb., "	12.88
" " ..	1 Apr., "	13.61
" " ..	2 " "	16.46
" " ..	31 Jan., 1913	24.72
" " ..	24 " 1916	13.17
Haughton Valley	26 " 1896	18.10
Herberton ..	31 " 1913	14.00
Hillcrest (Mooloolah)	26 Dec., 1909	13.35
Holmwood (Woodf'd)	2 Feb., 1893	16.19
" "	10 Jan., 1898	12.40
Homebush ..	3 Feb., "	12.04
Howard ..	15 Jan., 1905	19.55
Huntley ..	27 Dec., 1916	18.94
Ingham	18 Jan., 1894	12.60
"	6 " 1901	13.59
"	25 Dec., 1903	12.30
"	11 Mar., 1918	12.68
Inkerman ..	21 Sep., 1890	12.93
" ..	24 Jan., 1918	12.70
Inneshowen (Johnstone River)	30 Dec., 1889	14.01
Innisfail (formerly Geraldton) ..	11 Feb., "	17.13
" " ..	31 Dec., "	12.45
" " ..	6 Apr., 1894	16.02
" " ..	18 " 1899	13.20
" " ..	24 Jan., 1900	15.22
Innisfail (formerly Geraldton) ..	29 Dec., 1903	21.22
" " ..	11 Feb., 1911	14.48
" " ..	1 Apr., "	12.35
" " ..	2 " "	15.00
" " ..	7 " 1912	20.50
" " ..	8 " "	12.15
" " ..	31 Jan., 1913	20.91
Invicta (Kolan R.)	16 " "	14.58
Isis Junction ..	6 Mar., 1898	13.60
Kabra	23 Jan., 1918	10.28
Kamerunga (Cairns)	20 " 1892	13.61
" "	6 Apr., 1894	14.04
" "	5 " 1895	12.31
" "	11 Feb., 1911	13.07
" "	1 Apr., "	14.20
" "	2 " "	21.00
" "	31 Jan., 1913	16.00
Koumala ..	23 " 1918	22.31
" ..	24 " "	20.65
Kujara (Cairns) ..	31 " 1913	12.69
Kuranda (Cairns) ..	6 Mar., 1899	14.12
" " ..	20 Apr., 1903	14.16
" " ..	14 Jan., 1909	12.37
" " ..	11 Feb., 1911	16.30
" " ..	17 Mar., "	15.10
" " ..	31 " "	18.60
" " ..	1 Apr., "	24.30
" " ..	2 " "	28.80
" " ..	31 Jan., 1913	16.34
Lake Nash ..	10 " 1895	10.25
" ..	20 Mar., 1901	10.02
Landsborough ..	2 Feb., 1893	15.15
" ..	9 June, "	12.80
" ..	26 Dec., 1909	14.00
Low Island ..	10 Mar., 1904	15.07
" ..	31 " 1911	14.70
" ..	1 Apr., "	15.30
Lucinda	17 Feb., 1906	13.35
"	10 Mar., 1906	14.60
"	22 Apr., 1920	14.92
Lyndon (via Brixton)	3 " 1917	17.00*
Lytton	21 Jan., 1887	12.85
Mackay	23 Dec., 1909	13.96
"	21 Jan., 1918	24.70†
"	22 " "	17.25‡
"	23 " "	13.61
Sugar Experimental Farm, Mackay ..	23 Dec., 1909	12.00
" ..	21 Jan., 1918	16.80
" ..	22 " "	17.20
" ..	23 " "	13.61
Marnade Mill ..	18 " 1894	12.56
" ..	17 Apr., "	14.26
" ..	5 Feb., 1899	15.20
" ..	6 Jan., 1901	23.33
" ..	7 Mar., 1914	12.44

* Mr. Jas. Laidlaw, of Lyndon, states that this fell in 4 hours. † 37½ hours. ‡ 22½ hours.

HEAVY RAINFALLS, QUEENSLAND—*continued.*

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Macnade Mill	4 Mar., 1915	22.00	Port Douglas	17 Mar., 1911	16.10
Maleny	26 Dec., 1909	14.76	,, ,,	1 Apr., ,,	31.53
Mapleton	14 Mar., 1908	14.29	Princhester	23 Jan., 1918	10.00
,,	26 Dec., 1909	15.72	Proserpine	23 ,, ,,	18.17
,,	10 Feb., 1915	12.75	Ravenswood	24 Mar., 1890	17.00
Marlborough	17 ,, 1888	14.24	Redcliffe	21 Jan., 1887	14.00
,,	22 Jan., 1918	13.70	,,	16 Feb., 1893	17.35
Milton	14 Mar., 1908	12.24	Reid River	2 ,, 1917	11.15
,,	9 Feb., 1915	10.15	Rosedale	6 Mar., 1898	12.60
Mirani	12 Jan., 1901	16.59	,,	16 Jan., 1913	18.90
,,	23 ,, 1918	13.50	Sandgate	16 Feb., 1893	14.03
,,	24 ,, ,,	12.25	Sarina	23 Jan., 1918	22.60
Miriam Vale (B'berg)	17 ,, 1913	15.80	Somerset	28 ,, 1903	12.02
,, ,,	9 Feb., 1915	10.22	Spill Creek	21 ,, 1918	11.07
Mooloolah	13 Mar., 1892	21.53	Stanwell	22 ,, ,,	11.70
,,	2 Feb., 1893	19.11	,,	23 ,, ,,	11.05
,,	6 Mar., 1898	14.43	St. Helens (Mackay)	24 Feb., 1888	12.00
Mornington Island	18 Jan., 1919	14.85	St. Lawrence	17 ,, ,,	12.10
Mount Crosby	14 Mar., 1908	14.00	,,	30 Jan., 1896	15.00
Mount Cuthbert	8 Jan., 1911	18.00	Tewantin	30 Mar., 1904	12.30
Mount Molloy	31 Mar., ,,	20.00	The Caves	23 Jan., 1918	12.60
,,	1 Apr., ,,	20.00	The Hollow (Mackay)	23 Feb., 1888	15.12
,,	2 ,, ,,	20.00	Thornborough	20 Apr., 1903	18.07
Mount Mee	10 Feb., 1915	12.00	Townsville	24 Jan., 1892	19.20
Mourilyan	14 Jan., 1909	13.00	,,	28 Dec., 1903	15.00
,,	3 ,, 1911	12.70	Victoria Mill	6 Jan., 1901	16.67
,,	11 Feb., ,,	17.40	,,	21 Apr., 1920	12.40
,,	1 Apr., ,,	13.20	Walsh River	1 Apr., 1911	13.70
,,	7 ,, 1912	18.97	Warren State		
,,	31 Jan., 1913	15.05	Farm	22 Jan., 1918	11.42
Mundoolun	21 ,, 1887	17.95	Woodford	2 Feb., 1893	14.93
Musgrave	6 Apr., 1894	13.71	Woodlands (Yepp'n)	25 Mar., 1890	14.25
Nambour	9 Jan., 1898	21.00	,, ,,	31 Jan., 1893	23.07
,,	7 Mar., ,,	13.28	,, ,,	9 Feb., 1896	13.97
,,	27 Dec., 1909	16.80	,, ,,	7 Jan., 1898	14.50
Nerang	15 June, 1892	12.35	Woody Island	16 ,, 1913	12.66
Netherdale	22 Jan., 1918	19.50	Woombye	26 Dec., 1909	13.42
,,	11 Mar., ,,	12.25	Wootha	10 Feb., 1915	15.93
North Kolan			Wycarbah	21 Jan., 1918	10.80
(Bundaberg)	16 Jan., 1913	12.90	,,	22 ,, ,,	10.64
North Pine	16 Feb., 1893	14.97	Yandina	1 Feb., 1893	20.08
Nundah	14 Mar., 1908	12.00	,,	9 June, ,,	12.70
Oxenford	14 ,, ,,	15.65	,,	9 Jan., 1898	19.25
Palmwoods	4 Feb., 1893	12.30	,,	7 Mar., ,,	13.52
,,	10 Jan., 1898	15.85	,,	28 Dec., 1909	15.80
,,	7 Mar., ,,	13.02	Yarrabah	11 Feb., 1911	12.00
,,	25 Dec., 1909	17.75	,,	2 Apr., ,,	30.65
Peachester	26 ,, ,,	14.91	,,	24 Jan., 1916	27.20
Pialba (Marybor'gh)	16 Jan., 1913	17.22	,,	25 ,, ,,	18.60
Pittsworth	11 Mar., 1890	14.68	Yeppoon	31 ,, 1893	20.05
Plane Creek (Mackay)	26 Feb., 1913	27.73	,,	8 ,, 1898	18.05
Point Archer	23 Jan., 1914	13.47	,,	3 Feb., 1906	14.90
Port Douglas	5 Mar., 1887	13.00	,,	3 ,, 1911	14.92
,, ,,	10 ,, 1904	16.34	,,	18 Jan., 1913	13.00
,, ,,	11 Jan., 1905	14.68	,,	8 Oct., 1914	21.70

NOTE.—*In Queensland falls of 12 or more inches within 20 miles of the coast or 10 or more inches*

HEAVY RAINFALLS, WESTERN AUSTRALIA, UP TO 1920, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Ascot	8 Feb., 1912	8.85	Point Torment ..	17 Dec., 1906	11.86
"	9 " "	5.85	Port George IV. ..	17 Jan., 1915	11.34
Balla Balla ..	21 Mar., 1899	14.40	Roebourne ..	3 Apr., 1898	11.44
Bamboo Creek ..	22 " "	10.10	Roebuck Plains ..	5 Jan., 1917	14.01
Boodarie.. ..	21 " "	14.53	" " ..	6 " 1917	22.36
Broome	6 Jan., 1917	14.00	Tambray ..	6 Mar., 1900	10.00
"	7 " "	6.20	" ..	3 " 1903	10.47
Carlton	11 " 1906	10.64	Thangoo ..	17-19 Feb.,'96	24.18
Cossack	3 Apr., 1898	12.82	" ..	28 Dec., 1898	11.55
"	16 " 1900	13.23	Whim Creek ..	2 Apr., 1898	7.08
Croydon	3 Mar., 1903	12.00	" " ..	3 " "	29.41
Derby	29 Dec., 1898	13.09	" " ..	6 Mar., 1900	10.03
"	30 " "	7.14	" " ..	3 " 1903	10.44
"	6 Jan., 1917	5.97	Woodbrook ..	2 Apr., 1898	3.80
"	7 " "	16.47	" " ..	3 " 1898	8.78
Exmouth Gulf ..	2 Feb., 1918	12.50	Woodstock ..	21 Mar., 1912	13.00
Fortescue ..	3 May, 1890	23.36	Wyndham ..	27 Jan., 1890	11.60
Frazier Downs ..	3 Mar., 1916	12.25	" ..	4 Mar., 1910	12.50
Kerdiadary ..	7 Feb., 1901	12.00	" ..	11 Jan., 1903	9.98
Meda	2 Mar., 1916	10.55	" ..	12 " "	6.64
Millstream ..	5 " 1900	10.00	Yardil Creek ..	3 Feb., 1918	10.00
Obagama ..	28 Feb., 1910	12.00	Yeeda	2 Mar., 1916	10.70
" ..	24 Dec., 1920	13.02	"	6 Jan., 1917	10.20
Pilbara	2 Apr., 1898	14.04	"	7 " "	11.75
Point Cloates ..	20 Jan., 1909	10.87			

HEAVY RAINFALLS, NORTHERN TERRITORY, UP TO 1920, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Bonrook	24 Dec., 1915	10.60	Cosmopolitan Gold Mine ..	24 Dec., 1915	10.60
Borroloola ..	14 Mar., 1899	14.00	Lake Nash ..	21 Mar., 1901	10.25
Brock's Creek ..	4 Jan., 1914	10.68	Pine Creek ..	8 Jan., 1897	10.35
" " ..	24 Dec., 1915	14.33	Darwin	7 " 1897	11.67
Burrundie ..	4 Jan., 1914	11.61			

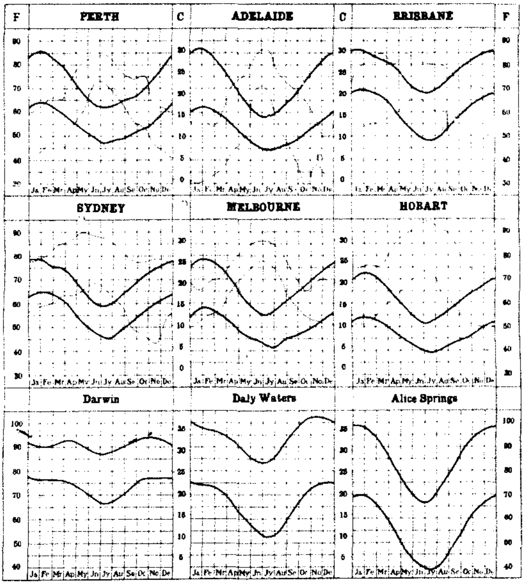
HEAVY RAINFALLS, VICTORIA, UP TO 1920, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Balook	26 Sept.,1917	5.32	Mt. Buffalo ..	6 June, 1917	8.53
"	27 " "	7.23	" ..	7 " "	6.56
"	28 " "	2.08			

HEAVY RAINFALLS, TASMANIA, UP TO 1920, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Gould's Country ..	8-10 Mar., '11	15.33	Mathinna ..	8-10 Mar., '11	15.79
Lottah	8-10 " "	18.10	The Springs ..	30-31 Jan., '16	10.75

GRAPHS SHEWING ANNUAL FLUCTUATIONS OF MEAN MAXIMUM AND MINIMUM TEMPERATURE AND HUMIDITY IN SEVERAL PARTS OF THE COMMONWEALTH OF AUSTRALIA.



EXPLANATION OF THE GRAPHS OF TEMPERATURE AND HUMIDITY.—In the above graphs in which the heavy lines denote "temperature" and the thin lines "humidity," the fluctuations of mean temperature and mean humidity are shewn throughout the year. These curves are plotted from the data given in the Climatological Tables hereinafter. The temperatures are shewn in degrees Fahrenheit, the inner columns giving the corresponding values in Centigrade degrees. Humidities have not been obtained for Darwin, Daly Waters, and Alice Springs.

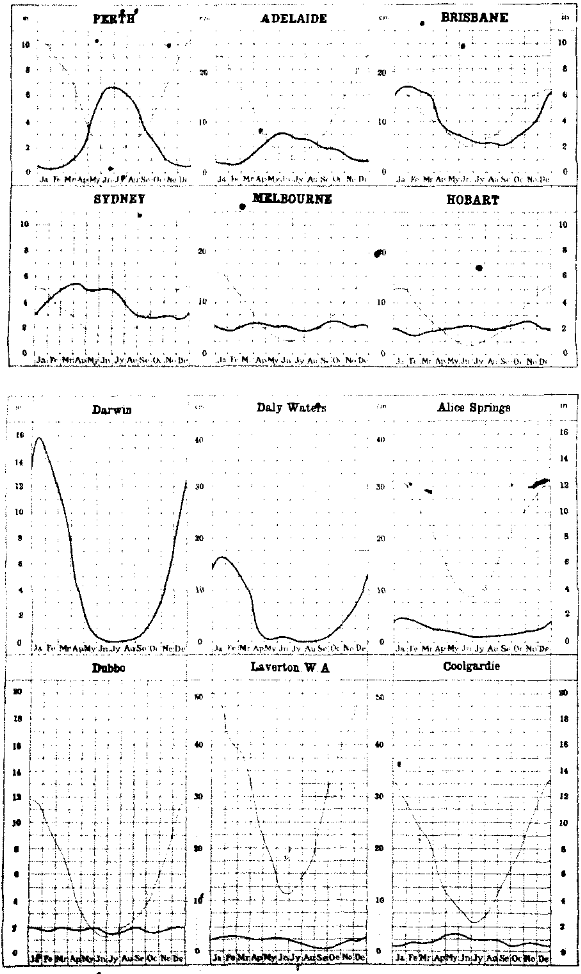
For the thin lines the degree numbers represent relative humidities, or the percentages of actual saturation (absolute saturation = 100).

The upper temperature line represents the mean of the maximum, and the lower line the mean of the minimum results; thus the curves also shew the progression of the range between maximum and minimum temperatures throughout the year. The humidity curves shew the highest and lowest values of the mean monthly humidity at 9 a.m. recorded during a series of years.

INTERPRETATION OF THE GRAPHS.—The curves denote mean monthly values. Thus, taking for example, the temperature graphs for Perth, the mean readings of the maximum and minimum temperatures for a number of years on 1st January would give respectively about 83° Fahr. and 62° Fahr. Thus the mean range of temperature on that date is the difference, viz., 21°. Similarly, observations about 1st June would give respectively about 66° Fahr. and 51° Fahr., or a range of 15°.

In a similar manner it will be seen that the greatest mean humidity, say for March, is about 66° and the least mean humidity for the month 46°; in other words, at Perth the degree of saturation of the atmosphere by aqueous vapour for the month of March ranges between 66% and 46%.

GRAPHS SHEWING ANNUAL FLUCTUATIONS OF MEAN RAINFALL AND MEAN EVAPORATION IN SEVERAL PARTS OF THE COMMONWEALTH OF AUSTRALIA.



Explanation of the Graphs of Rainfall and Evaporation.—On the preceding graphs thick lines denote rainfall and thin lines evaporation, and shew the fluctuation of the mean rate of fall *per month* throughout the year. The results, plotted from the Climatological Tables hereinafter, are shewn in inches (see the outer columns), and the corresponding metric scale (centimetres) is shewn in the two inner columns. The evaporation is not given for Darwin and Daly Waters.

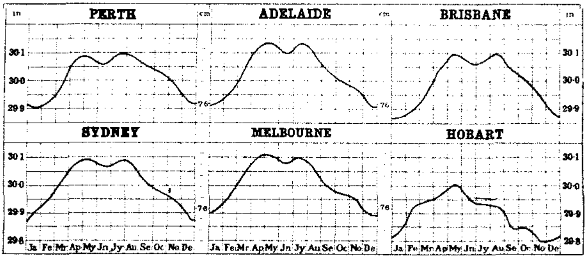
At Perth, Adelaide, Brisbane, Melbourne, Hobart, Alice Springs, and Coolgardie the results have been obtained from jacketed tanks sunk in the ground. At Sydney and Dubbo sunken tanks without water jackets are used, whilst at Laverton (W.A.) the records are taken from a small portable jacketed evaporation dish of 8 inches in diameter.

Interpretation of the Graphs.—The distance for any date from the zero line to the curve represents the average number of inches, reckoned as per month, of rainfall at that date. Thus, taking the curves for Adelaide, on the 1st January the rain falls on the average at the rate of about four-fifths of an inch per month, or, say, at the rate of about 9½ inches per year. In the middle of June it falls at the rate of nearly 3 inches per month, or, say, at the rate of about 36 inches per year. At Dubbo the evaporation is at the rate of nearly 11¼ inches per month about the middle of January, and only about 1½ inches at the middle of June.

TABLE SHEWING MEAN ANNUAL RAINFALL AND EVAPORATION IN INCHES AT THE PLACES SHEWN ON PRECEDING PAGE, AND REPRESENTED BY THE GRAPHS.

—	Rainfall.	Evaporation.	—	Rainfall.	Evaporation.
Perth ..	33.75	65.90	Darwin ..	61.82	..
Adelaide ..	21.03	54.49	Daly Waters ..	26.13	—
Brisbane ..	45.52	54.52	Alice Springs ..	10.59	94.84
Sydney ..	48.12	38.00	Dubbo ..	22.04	66.37
Melbourne ..	25.60	38.81	Laverton, W.A.	10.62	140.98
Hobart ..	23.66	32.41	Coolgardie ..	10.07	87.72

GRAPHS SHEWING ANNUAL FLUCTUATIONS OF MEAN BAROMETRIC PRESSURE FOR THE CAPITALS OF THE SEVERAL STATES OF THE COMMONWEALTH OF AUSTRALIA.



Explanation of the Graphs of Barometric Pressure.—On the above graphs the lines representing the yearly fluctuation of barometric pressure at the State capital cities are means for long periods, and are plotted from the Climatological Tables given hereinafter. The pressures are shewn in inches on about 2½ times the natural scale, and the corresponding pressures in centimetres are also shewn in the two inner columns, in which each division represents one millimetre.

Interpretation of the Barometric Graphs.—Taking the Brisbane graph for purposes of illustration, it will be seen that the mean pressure on 1st January is about 29·87 inches, and there are maxima in the middle of May and August of about 30·09 inches.

Chart indicating the area affected and period of duration of the Longest Heat Waves when the Maximum Temperature for consecutive 24 hours reached or exceeded 90° Fah.

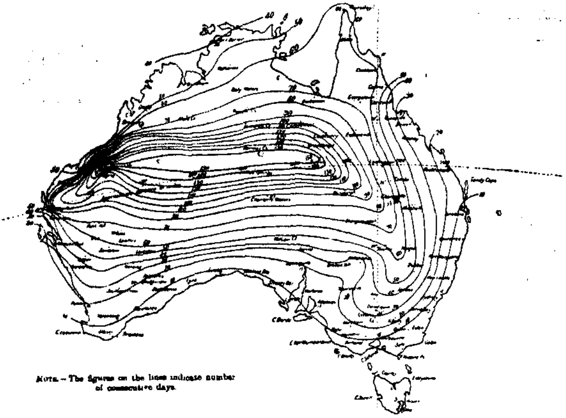
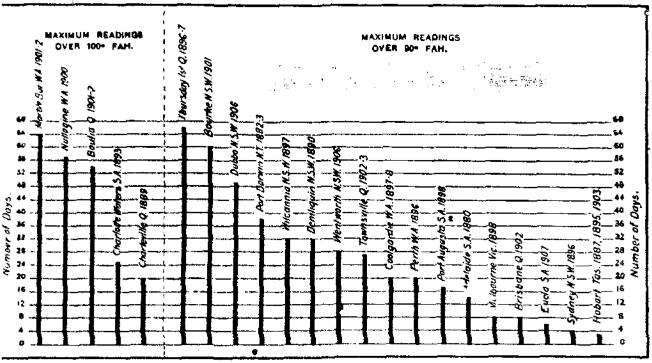
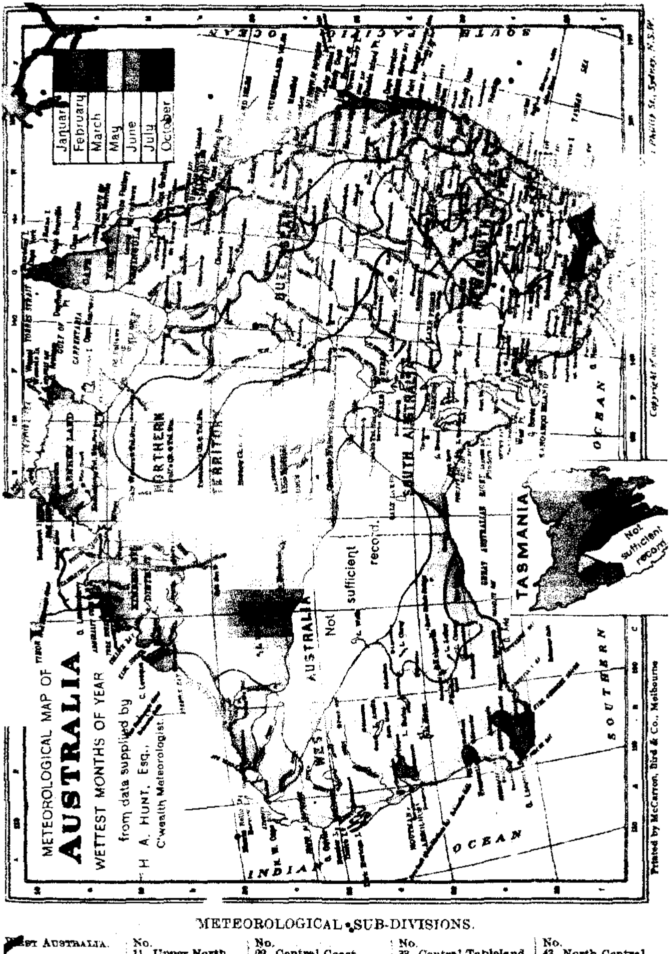


Diagram showing the greatest number of consecutive days on which the Temperature in the shade was over 100° and also over 90° at the places indicated.





METEOROLOGICAL SUB-DIVISIONS.

West Australia.

East Kimberley.
West Kimberley.
North-West.
Gascoyne.
South-West.
Eucla.
Eastern.

South Australia.

Northern Territory.
Far North and N.W.
West.

No.
11. Upper North.
12. North-East.
13. Lower North.
14. Central.
15. Murray Valley.
16. South-East.

Queensland.

17. Peninsular.
18. Gulf.
19. Far West.
20. Central.
21. Nth-East Coast.
22. Central Coast.
23. South-East Coast.
24. Darling Downs.
25. Maranoa.
26. South-West.

New South Wales.

27. Western.
28. North-West Plain.
29. North-West Slope.
30. Northern Tableland.
31. North Coast.
32. Hunter & Manning.
33. Central Tableland.
33a. Metropolitan.
34. Cent. Westn. Slope.
35. Cent. Westn. Plain.
36. Riverina.
37. South-West Slope.
38. Southern Tableland.
39. South Coast.

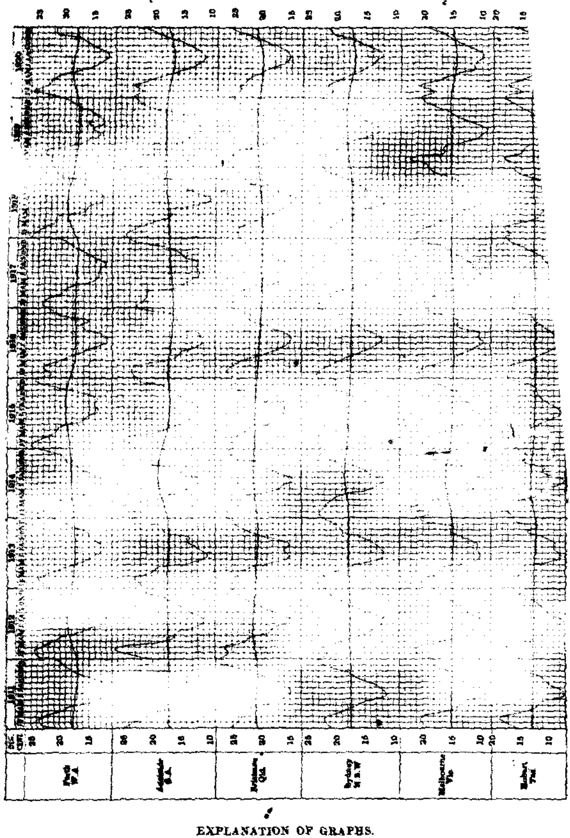
Victoria.

40. Gippsland.
41. North-East.
42. Central.
43. North Central.
44. Northern Country.
45. Mallee.
46. Wimmera.
47. Western.

Tasmania.

48. Northern.
49. W. Coast Mt. Region.
50. Central Plateau.
51. Midland.
[illegible]

GRAPHS SHEWING THE MEAN MONTHLY, AND MEAN ANNUAL TEMPERATURES OF PRINCIPAL AUSTRALIAN CITIES FROM 1911 TO 1920.

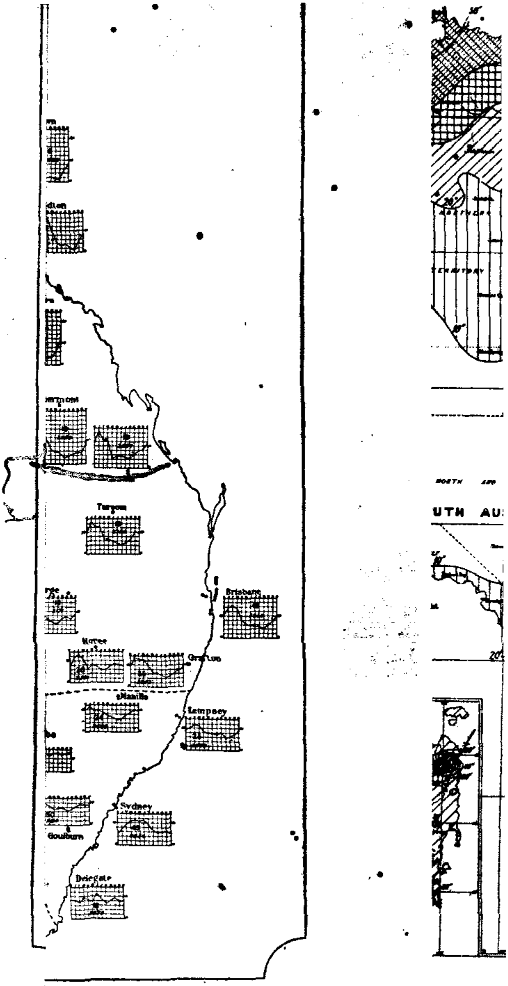


EXPLANATION OF GRAPHS.

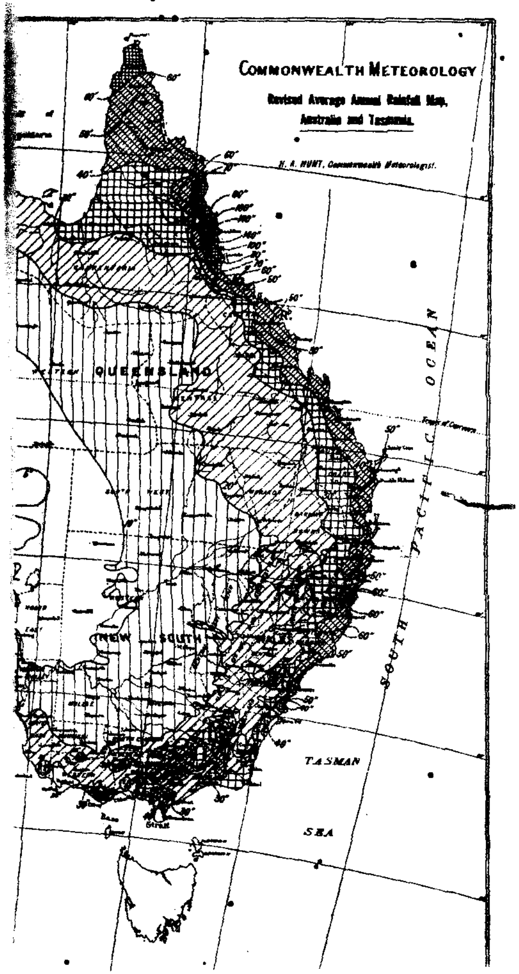
The six light continuous curves shew the fluctuations of mean monthly temperatures of the Australian capitals from 1911 to 1920.

The six heavy curves similarly shew the fluctuations of the mean annual temperatures of the Australian capitals from 1911 to 1920.

The base of each small square denotes one month, and the vertical side 2° Centigrade or 3·6° Fahrenheit.



Taroom
Brisbane
Moree
Sydney
Goulburn
Delegate
TERRITORY



COMMONWEALTH METEOROLOGY
Revised Average Annual Rainfall Map,
Australia and Tasmania.
H. A. HUNT, Commonwealth Meteorologist.
QUEENSLAND
NEW SOUTH WALES
SOUTH PACIFIC OCEAN
TASMAN
SEA

10. **Snowfall.**—Light snow has been known to fall even as far north, occasionally, as latitude 31° S., and from the western to the eastern shores of the continent. During exceptional seasons it has fallen simultaneously over two-thirds of the State of New South Wales, and has extended at times along the whole of the Great Dividing Range, from its southern extremity in Victoria as far north as Toowoomba in Queensland. During the winter snow covers the ground to a great extent on the Australian Alps for several months, where also the temperature falls below zero Fahrenheit during the night, and in the ravines around Kosciusko and similar localities the snow never entirely disappears.

The antarctic "V"-shaped disturbances are always associated with our most pronounced and extensive snowfalls. The depressions on such occasions are very steep in the vertical area, and the apexes are unusually sharp-pointed and protrude into very low latitudes, sometimes even to the tropics.

11. **Hail.**—Hail falls throughout Australia most frequently along the southern shores of the continent in the winter, and over south-eastern Australia during the summer months. The size of the hailstones generally increases with distance from the coast, a fact which lends strong support to the theory that hail is brought about by ascending currents. Rarely does a summer pass without some station experiencing a fall of stones exceeding in size an ordinary hen-egg, and many riddled sheets of light-gauge galvanised iron bear evidence of the weight and penetrating power of the stones.

Hail storms occur most frequently in Australia when the barometric readings indicate a flat and unstable condition of pressure. They are almost invariably associated with tornadoes or tornadic tendencies, and on the east coast the clouds from which the stones fall are generally of a remarkable sepia-coloured tint.

12. **Barometric Pressures.**—The mean annual barometric pressure (corrected to sea-level and standard gravity) in Australia varies from 29.80 inches on the north coast to 29.92 inches over the central and 30.03 inches in the southern parts of the continent. In January the mean pressure ranges from 29.70 inches in the northern and central areas to 29.95 inches in the southern. The July mean pressure ranges from 29.90 inches at Darwin to 30.12 inches at Alice Springs. Barometer readings, corrected to mean sea level and standard gravity, have, under anticyclonic conditions in the interior of the continent, ranged as high as 30.77 inches (at Kalgoorlie on the 28th July, 1901) and have fallen as low as 27.55 inches. This lowest record was registered at Mackay during a tropical hurricane on the 21st January, 1918. An almost equally abnormal reading of 27.88 inches was recorded at Innisfail during a similar storm on the 10th March, 1918. The mean annual fluctuations of barometric pressure for the capitals of Australia are shewn on page 67.

13. **Wind.**—Notes on the distinctive wind currents in Australia were given in preceding Year Books (see No. 6, page 83) and are here omitted to save space.

14. **Cyclones and Storms.**—The "elements" in Australia are ordinarily peaceful, and although severe cyclones have visited various parts, more especially coastal areas, such visitations are rare, and may be properly described as erratic.

During the winter months the southern shores of the continent are subject to cyclonic storms, evolved from the V-shaped depressions of the southern low-pressure belt. They are felt most severely over the south-western parts of Western Australia, to the south-east of South Australia, in Bass Straits, including the coast line of Victoria, and on the west coast of Tasmania. Apparently the more violent wind pressures from these cyclones are experienced in their northern half, that is, in that part of them which has a north-westerly to a south-westerly circulation.

Occasionally the north-east coast of Queensland is visited by hurricanes from the north-east tropics. During the first four months of the year these hurricanes appear to have their origin in the neighbourhood of the South Pacific Islands, their path being a parabolic curve of south-westerly direction. Only a small percentage, however, reach Australia, the majority recurving in their path to the east of New Caledonia.

Very severe cyclones, locally known as "Willy Willies," are peculiar to the north-west coast of Western Australia from the months of November to April inclusive. They apparently originate in the ocean, in the vicinity of Cambridge Gulf, and travel in a south-westerly direction with continually increasing force, displaying their greatest energy near Cossack and Onslow, between latitudes 20° and 22° South. The winds in these storms, like those from the north-east tropics, are very violent and destructive,

causing great havoc amongst the pearl-fishers. The greatest velocities are usually to be found in the south-eastern quadrant of the cyclones, with north-east to east winds. After leaving the north-west coast, these storms either travel southwards, following the coast-line, or cross the continent to the Great Australian Bight. When they take the latter course their track is marked by torrential rains, as much as 29.41 inches, for example, being recorded in 24 hours at Whim Creek from one such occurrence. Falls of 10 inches and over have frequently been recorded in the northern interior of Western Australia from similar storms.

Some further notes on severe cyclones and on "Southerly Bursters," a characteristic feature of the eastern part of Australia, will be found in previous issues of the Year Book (see No. 6, pp. 84, 85, 86).

15. **Influences affecting Australian Climate.**—Australian history does not cover a sufficient period, nor is the country sufficiently occupied, to ascertain whether or not the advance of settlement has materially affected the climate as a whole. Local changes therein, however, have taken place, a fact which suggests that settlement and the treatment of the land have a distinct effect on local conditions. For example, the mean temperature of Sydney shows a rise of two-tenths of a degree during the last twenty years, a change probably brought about by the great growth of residential and manufacturing buildings within the city and in the surrounding suburbs during that period. Again, low-lying lands on the north coast of New South Wales, that originally were seldom subject to frosts, have, with the denudation of the surrounding hills from forests, experienced annual visitations, the probable explanation being that, through the absence of trees, the cold air of the high lands now flows, unchecked and untempered, down the sides of the hills to the valleys and lower lands.

(i) *Influences of Forests on Climate.* As already indicated, forests doubtless exercise a great influence on local climate, and hence, to the extent that forestal undertakings will allow, the weather can be controlled by human agency. The direct action of forests is an equalising one; thus, especially in equatorial regions and during the warmest portion of the year, they considerably reduce the mean temperature of the air. They also reduce the diurnal extremes of shade temperatures by altering the extent of radiating surface, by evaporation, and by checking the movement of air. While decreasing evaporation from the ground, they increase the relative humidity. Vegetation greatly diminishes the rate of flow-off of rain and the washing away of surface soil. Thus, when a region is protected by trees, a steadier water supply is ensured, and the rainfall is better conserved. In regions of snowfall the supply of water to rivers is similarly regulated, and without this and the sheltering influence of ravines and "gullies," watercourses supplied mainly by melting snow would be subject to alternate periods of flooding and dryness. This is borne out in the inland rivers. Thus, the River Murray, which has never been known to run dry, derives its steadiness of flow mainly through the causes above indicated.

(ii) *Direct Influences of Forests on Rainfall.* Whether forests have a direct influence on rainfall is a debatable question, some authorities alleging that precipitation is undoubtedly induced by forests, while others contend the opposite.

Sufficient evidence exists, however, to establish that, even if the rainfall has not increased, the beneficial effect of forest lands in tempering the effects of the climate is more than sufficient to disclose the importance of their protection and extension.

It is the rapid rate of evaporation, induced by both hot and cold winds, which injures crops and makes life uncomfortable on the plains. Whether the forest aids in increasing precipitation there may be doubt, but nobody can say that it does not check the winds and the rapid evaporation due to them.

Trees as wind-breaks have been successfully planted in central parts of the United States, and there is no reason why similar experiments should not be successful in many parts of our treeless interior. The belts should be planted at right angles to the direction of the prevailing parching winds, and if not more than half a mile apart will afford shelter to the enclosed areas.

In previous issues some notes on observations made in other countries were added (see Year Book No. 6, pp. 86 and 95).

16. **Comparison of Rainfalls and Temperatures.**—For the purpose of comparison the following lists of rainfalls and temperatures are given for various important cities throughout the world, for the site of the Federal capital, and for the capitals of the Australian States.

COMPARISONS OF RAINFALLS AND TEMPERATURES OF CITIES OF THE WORLD WITH THOSE OF AUSTRALIA.

Place.	Height above M.S.L.	Annual Rainfall. Average.	Annual Rainfall. Highest.	Annual Rainfall. Lowest.	Temperature. *Mean Summer.	Temperature. †Mean Winter.	Temperature. Highest on Record.	Temperature. Lowest on Record.	Temperature. Average Hottest Month.	Temperature. Average Coldest Month.
	Ft.	Ins.	Ins.	Ins.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.
Amsterdam ..	6	27.29	40.59	17.60	63.2	36.8	90.0	4.1	64.4	35.4
Auckland ..	125	43.31	63.72	26.32	66.1	52.5	91.0	31.9	67.2	51.8
Athens ..	351	15.48	33.32	4.55	79.2	49.1	106.5	19.6	81.1	47.5
Bergen ..	146	80.10	102.80	73.50	56.8	34.5	88.5	4.8	57.9	33.6
Berlin ..	115	22.95	30.04	14.25	64.7	32.2	98.6	−1[illegible].0	66.0	30.0
Berne ..	1,877	36.30	58.23	24.69	62.2	30.1	91.4	− 3.6	64.4	28.0
Bombay ..	37	71.15	114.89	33.41	83.5	75.1	100.2	53.3	84.8	74.2
Breslau ..	482	22.00	28.01	16.45	63.9	30.0	100.0	−23.4	65.5	29.3
Brussels ..	328	28.35	41.18	17.73	63.6	36.0	95.5	− 4.4	63.7	34.5
Budapest ..	500	25.20	35.28	16.79	68.6	30.2	98.6	− 5.1	70.4	28.2
Buenos Ayres ..	72	36.62	80.78	21.53	73.2	51·5	103.1	25.9	74.2	50.5
Calcutta ..	21	61.98	89.32	39.38	84.0	67.1	108.2	44.2	86.4	65.5
Capetown ..	40	25.50	36.72	17.71	68.1	54.7	102.0	34.0	68.8	53.9
Caracas ..	3,420	30.03	47.36	23.70	68.3	65.3	87.8	48.2	69.2	63.7
Chicago ..	823	33.54	45.86	24.52	69.2	25.4	103.0	−23.0	72.3	24.0
Christchurch ..	25	25.45	35.30	13.54	61.1	43.4	95.7	21.3	61.6	42.4
Christiania ..	82	22.52	31.73	16.26	61.0	24.4	95.0	−21.1	62.6	23.9
Colombo ..	40	83.83	139.70	51.60	81.5	79.9	95.8	65.0	82.6	79.1
Constantinople ..	245	28.75	42.74	14.78	74.0	43.5	103.6	13.0	75.7	42.0
Copenhagen ..	46	22.33	28.78	13.94	60.7	32.1	90.5	−13.0	62.2	31.4
Dresden ..	115	26.80	34.49	17.72	62.0	32.4	93.4	−15.3	64.4	31.6
Dublin ..	47	27.66	35.56	16.60	59.4	42.0	87.2	13.3	60.5	41.7
Dunedin ..	300	37.06	53.90	22.15	57.3	43.1	94.0	23.0	57.9	42.0
Durban ..	260	40.79	71.27	27.24	75.6	64.4	110.6	41.1	76.7	63.8
Edinburgh ..	441	25.21	32.05	16.44	55.8	38.8	87.7	5.0	57.2	38.3
Geneva ..	1,328	33.48	46.80	21.14	64.4	33.7	..	..	66.2	32.2
Genoa ..	157	51.29	108.22	28.21	73.8	46.8	94.5	16.7	75.4	45.5
Glasgow ..	184	38.49	56.18	29.05	52.7	41.0	84.9	6.6	58.0	38.4
Greenwich ..	159	24.12	35.54	16.38	61.3	39.3	100.0	4.0	62.7	38.6
Hong Kong ..	110	84.10	119.72	45.83	81.3	60.3	97.0	32.0	81.8	58.1
Johannesburg ..	5,750	31.63	50.00	21.66	65.4	54.4	94.0	23.3	66.2	48.9
Leipzig ..	384	24.69	31.37	17.10	63.1	31.5	97.3	−14.8	64.8	30.6
Lisbon ..	312	29.18	52.79	17.32	69.6	51.3	94.1	32.5	70.2	49.8
London ..	18	24.04	38.20	18.23	61.2	39.3	100.0	9.4	62.8	38.7
Madras ..	22	40.06	88.41	18.45	86.7	76.0	113.0	57.5	87.6	75.2
Madrid ..	2,149	16.23	27.48	9.13	73.0	41.2	107.1	10.5	75.7	39.7
Marseilles ..	246	21.88	43.04	12.28	70.3	45.3	100.4	11.5	72.1	43.3
Moscow ..	526	18.94	29.28	12.07	63.4	14.7	99.5	−44.5	66.1	11.9
Naples ..	489	34.00	56.58	21.75	73.6	48.0	99.1	23.9	75.4	46.8
New York ..	*314*	*42.47*	*59.62*	*28.78*	*72.1*	*31.7*	*100.0*	*− 6.0*	*74.5*	*30.2*
Ottawa ..	294	33.40	44.44	26.36	67.2	14.1	98.5	−33.0	69.7	12.0
Paris ..	165	21.92	29.56	16.44	63.5	37.1	101.1	−14.1	65.8	36.1
Pekin ..	143	24.40	36.00	18.00	77.7	26·6	114.0	− 5.0	79.2	23.5
Quebec ..	296	40.46	47.57	32.12	68.5	12.4	95.5	−34.3	66.3	10.1
Rome ..	166	32.57	57.89	12.72	74.3	46.0	107.6	17.2	76.1	44.6
San Francisco ..	155	22.83	38.82	9.31	59.0	51.0	101.0	29.0	61.0	50.0
Shanghai ..	14	44.13	62.52	27.91	77.4	39.4	102.9	10.2	79.7	37.4
Singapore ..	8	91.99	158.68	32.71	81.2	78.6	94.2	63.4	81.5	78.3
Stockholm ..	146	18.31	25.46	11.78	59.7	27.0	91·8	−22.0	62.1	25.7
Petrograd ..	16	21.30	29.52	13.75	61.1	17.4	97.0	−38.2	63.7	15.2
Tokio ..	70	59.17	77.10	45.72	73.9	38.9	97.9	15.4	77.7	37.1
Trieste ..	85	42.94	63.14	26.57	73.9	41.3	99.5	14.0	76.3	39.9
Vienna ..	663	24.50	33.90	16.50	65.7	30.4	97.7	− 8.0	67.1	28.0
Vladivostock ..	55	19.54	33.60	9.39	63.9	11.0	95.7	−21.8	69.4	6.1
Washington ..	75	43.80	61.33	18.79	74.7	34.5	104.0	−15.0	76.8	32.9
Wellington (N.Z.)	110	49.70	67.68	30.02	61.7	48.4	88.0	30.0	62.4	47.5
Zürich ..	1,542	45.15	78.27	29.02	63.3	31.3	94.1	−0.8	65.1	29.5
FEDERAL CAPITAL SITE.										
Canberra (Dist.) Queanbeyan	2,000 to 2,900	22.38	41.29	10.45	*68.5	†44.1	102.6	16.0	69.0	43.1
THE STATE CAPITALS.										
Perth ..	197	33.75	46.73	20.21	*72.9	†55.9	107.9	34.2	74.0	55.1
Adelaide ..	140	21.08	30.87	11.39	73.1	53.0	116.3	32.0	74.1	51.6
Brisbane ..	137	45.52	88.26	16.17	76.6	59.7	108.9	36.1	77.1	58.4
Sydney ..	133	48.19	82.76	21.49	71.0	54.0	108.5	35.9	71.7	52.5
Melbourne ..	115	25.60	44.25	15.61	66.6	50.0	111.2	27.0	67.4	48.6
Hobart ..	177	23.66	43.39	13.43	61.7	46.7	105.2	27.0	62.4	45.4

* Mean of the three hottest months. † Mean of the three coldest months.

17. Climatological Tables.—The means, averages, extremes, totals, &c., for a number of climatological elements have been determined from long series of observations at the Australian capitals up to and including the year 1920. These are given in the following tables:—

CLIMATOLOGICAL DATA FOR PERTH, W.A.

LAT. 31° 57′ S., LONG. 115° 50′ E. HEIGHT ABOVE M.S.L. 197 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. Mn. Sea Level and Standard Gravity from 9 a.m. and 3 p.m. readings.	Wind. Greatest Number of Miles in one day.		Wind. Mean Hourly Pressure. (lbs.)	Wind. Total Miles.	Wind. Prevailing Direction.	Mean Amount of Evaporation. (inches)	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m. 3 p.m. & 9 p.m.	No. of Clear Days.
No. of yrs. over which observation extends	36	23		23	23	23	22	23	24	24
January	29.906	797	27/98	0.69	11,309	S S E	10.43	1.8	2.7	14.1
February	29.926	650	6/08	0.63	9,891	S S E	8.59	1.3	2.8	11.4
March	29.989	651	6/13	0.54	10,018	S S E	7.57	1.4	3.3	11.5
April	30.074	955	25/00	0.42	8,503	S E	4.74	1.3	4.2	7.7
May	30.084	768	5/12	0.35	8,063	E N E	2.76	1.8	5.2	6.3
June	30.058	861	27/10	0.38	8,061	N	1.74	2.1	5.9	8.1
July	30.092	949	11/99	0.39	8,409	N	1.08	2.5	5.4	5.0
August	30.082	966	15/03	0.43	8,924	W	2.36	1.6	5.4	4.6
September	30.060	864	11/05	0.47	9,107	S W	3.31	1.4	4.9	5.6
October	30.032	809	6/16	0.53	9,911	S S W	5.22	1.1	4.9	5.8
November	29.988	777	18/97	0.60	10,219	S	7.67	1.4	3.8	7.9
December	29.929	672	31/98	0.65	10,945	S	9.83	1.5	2.9	12.3
Year — Totals	—		—	—	113,360	—	65.90	19.2	—	94.2
Year — Averages	30.018		—	0.51	—	S	—	—	4.4	—
Year — Extremes	—	966	15/8/03	—	—	—	—	—	—	—

TEMPERATURE.

Month.	Mean Temperature (Fahr.). Mean Max.	Mean Temperature (Fahr.). Mean Min.	Mean Temperature (Fahr.). Mean.	Extreme Shade Temperature (Fahr.). Highest.		Extreme Shade Temperature (Fahr.). Lowest.		Greatest Range.	Extreme Temperature (Fahr.). Highest in Sun.		Extreme Temperature (Fahr.). Lowest on Grass.		Mean Hours of Sunshine.
No. of yrs. over which observation extends	24	24	24	24		24		24	23		22		23
January	84.6	63.4	74.0	107.0	16/97 & 9/18	50.6	25/01	56.4	177.3	22/14	42.4	25/02	321.5
February	81.0	63.2	73.9	107.3	12/15	47.7	1/02	59.6	169.0	4/99	39.8	1/18	274.1
March	81.1	60.7	70.9	106.1	6/14	45.8	8/03	60.3	167.0	10/18	36.7	8/03	267.9
April	75.9	57.0	66.4	99.7	9/10	39.3	20/14	60.4	157.0	8/16	31.0	20/14	218.4
May	68.6	52.4	60.5	90.4	2/07	34.3	11/14	56.1	139.2	5/20	25.3	11/14	179.7
June	63.8	49.5	56.6	81.7	2/14	36.3	29/14	45.4	135.5	9/14	29.0	20/16	143.5
July	62.6	47.6	55.1	74.1	17/19	34.2	7/16	39.9	133.2	13/15	25.1	30/20	169.3
August	63.7	48.1	55.9	81.0	12/14	35.3	31/08	45.7	143.2	23/18	27.9	10/11	185.0
September	66.1	50.3	58.2	90.9	30/18	38.9	17/13	52.0	153.6	29/16	20.2	21/16	203.8
October	69.3	52.7	61.0	93.4	17/06	40.9	4/17	52.5	154.0	29/14	30.5	4/17	236.0
November	75.5	56.6	66.0	104.6	24/13	42.0	1/04	62.6	166.6	23/15	35.5	6/10 & 14/12	289.8
December	80.6	60.5	70.6	107.9	20/04	48.0	2/10	59.9	168.7	25/15	39.1	2/10	326.5
Year — Averages	73.0	55.2	64.1	—		—		—	—		—		2816.4*
Year — Extremes	—	—	—	107.9	20/12/04	34.2	7/7/16	73.7	177.3	22/1/14	25.1	30/7/20	—

* Total for Year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Rel. Hum. (%) Mean 9 a.m.	Rel. Hum. (%) Highest Mean.	Rel. Hum. (%) Lowest Mean.	Rainfall (inches). Mean Monthly.	Rainfall (inches). Mean No. of Days Rain.	Rainfall (inches). Greatest Monthly.		Rainfall (inches). Least Monthly.		Rainfall (inches). Greatest in One Day.		Dew (inches). Mean Amount of Dew.	Dew (inches). Mean No. Days Dew.
No. of yrs. over which observation extends	24	24	24	45	45	45		45		45		—	24
January	52	61	42	0.34	3	2.17	1879	nil	*	1.74	28/79	—	2.6
February	54	65	46	0.45	2	2.30	1883	nil	*	1.63	26/15	—	3.0
March	57	66	46	0.74	4	4.50	1896	nil	*	1.58	17/76	—	5.7
April	64	72	53	1.60	7	4.97	1882	nil	1920	2.62	30/04	—	8.9
May	72	81	61	4.75	14	*12.13	1879	0.98	1903	2.80	20/79	—	12.2
June	78	83	72	6.87	17	12.11	1890	2.16	1877	3.90	10/20	—	11.7
July	78	84	72	6.50	17	10.90	1902	2.42	1876	3.00	4/91	—	13.4
August	74	79	67	5.73	18	10.33	1882	0.46	1902	2.79	7/03	—	11.1
September	68	75	58	3.31	14	7.72	1903	0.62	1914	1.73	23/07	—	9.2
October	62	75	54	2.12	12	7.87	1890	0.49	1892	1.38	15/10	—	5.4
November	55	63	46	0.77	6	2.12	1880	nil	1891	1.11	30/03	—	4.0
December	52	62	44	0.57	4	3.05	1888	nil	1886	1.72	1/88	—	3.0
Year — Totals	—	—	—	33.75	118	—		—		—		—	90.2
Year — Averages	62	—	—	—	—	—		—		—		—	—
Year — Extremes	—	84	42	—	—	12.13	5/79	nil	†	3.90	10/6/20	—	—

* Various years. † January, February, March, November, and December, various years.

CLIMATOLOGICAL DATA FOR ADELAIDE, S.A.

LAT. 34° 56′ S., LONG. 138° 35′ E. HEIGHT ABOVE M.S.L. 140 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. Mn. Sea Level and Standard Gravity from 9 a.m. and 3 p.m. readings.	Wind.					Mean Amount of Evaporation (inches).	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m., 3 p.m., & 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in One Day.		Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	64	43		43	43	43	51	40	53	39
January	29.917	758	19/99	0.34	7,909	S	8.09	2.3	3.4	8.5
February	29.952	691	22/96	0.30	6,791	S	7.23	1.0	3.4	7.3
March	30.037	628	9/12	0.25	6,743	S	5.79	2.2	3.9	6.9
April	30.121	773	10/96	0.22	6,150	S x W	3.41	1.7	5.0	4.0
May	30.126	760	9/80	0.21	6,221	N x E	2.02	1.7	6.7	1.9
June	30.094	750	12/78	0.25	6,661	N	1.24	2.1	6.2	1.5
July	30.130	674	25/82	0.25	6,781	N	1.30	1.7	5.8	1.8
August	30.096	773	31/97	0.28	7,203	N N W	1.87	2.2	5.6	2.5
September	30.040	729	2/87	0.31	7,348	W	2.84	2.4	5.2	3.3
October	29.999	768	28/98	0.34	7,923	S W x W	4.76	3.4	4.9	4.1
November ..	29.975	677	2/04	0.33	7,570	S S W	6.50	3.7	4.6	5.3
December	29.919	675	12/91	0.34	7,935	S S W	8.44	2.7	3.7	7.6
Year: Totals ..	—	—		—	—	—	54.40	28.0	—	54.5
Year: Averages ..	30.034	—		0.28	7,103	S W x S	—	—	4.8	—
Year: Extremes ..	—	773*		—	—	—	—	—	—	—

* 10/4/96 and 31/8/97.

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature (Fahr.).			Extreme Shade Temperature (Fahr.).				Extreme Range.	Extreme Temperature (Fahr.).				Mean Hours of Sunshine.
	Mean Max.	Mean Min.	Mean	Highest.		Lowest.			Highest in Sun.		Lowest on Grass.		
No. of yrs. over which observation extends	64	64	64	64		64		64	43		60		39
January	86.5	61.6	74.0	116.3	26/58	45.1	21/84	71.2	180.0	18/82	36.5	14/79	310.5
February	86.1	62.1	74.1	113.6	12/99	45.5	23/18	68.1	170.5	10/00	36.7	‡	264.2
March	80.7	58.9	69.8	108.0	12/61	44.8	–/57	63.2	174.0	17/83	33.8	27/80	237.6
April	73.2	54.5	63.9	98.0	10/66	39.6	15/59	58.4	155.0	1/83	30.2	16/17	178.0
May	65.5	50.1	57.8	88.3	5/66	36.9	*	51.4	148.2	12/79	25.9	10/91	148.9
June	60.3	46.7	53.5	76.0	23/65	32.5	27/76	43.5	138.8	18/79	22.0	12/13	120.6
July	58.8	44.5	51.6	74.0	11/06	32.0	24/08	42.0	134.5	26/90	23.3	25/11	138.3
August	62.0	45.9	54.0	85.0	31/11	32.3	17/59	52.7	140.0	31/92	23.5	7/88	162.3
September	66.3	47.8	57.0	90.7	23/82	32.7	4/58	58.0	160.5	23/82	26.2	15/08	188.7
October	72.5	51.4	61.9	102.8	30/19	36.0	–/57	66.8	158.8	19/82	27.8	2/18	228.1
November ..	78.6	55.3	67.0	113.5	21/65	40.8	2/09	72.7	166.9	20/78	31.5	2/09	261.5
December	83.5	59.0	71.2	114.2	14/76	43.0	†	71.2	175.7	7/99	32.5	4/84	304.7
Year: Averages ..	72.8	53.2	63.0	—		—		—	—		—		2,589.0§
Year: Extremes ..	—	—	—	116.3	26/1/58	32.0	24/7/08	84.3	180.0	18/1/82	22.0	12/6/13	—

* 26/1895 and 24/1904. † 16/1861 and 4/1906. ‡ 24/78 and 23/18. § Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Rel. Hum. (%)			Rainfall (inches).									Dew (inches).	
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days' Rain.	Greatest Monthly.		Least Monthly.		Greatest in One Day.			Mean Amount of Dew.	Mean No. days Dew.
No. of yrs. over which observation extends	53	53	53	82	82	82		82		82			—	49
January	38	59	30	0.70	4	4.00	1850	nil	*	2.30	2/89		—	4.2
February	41	56	31	0.65	4	2.89	1919	nil	†	2.24	14/13		—	5.8
March	47	58	36	1.05	6	4.60	1878	nil	‡	3.50	5/78		—	11.1
April	56	72	44	1.80	9	6.78	1853	0.06	1910	3.15	5/60		—	14.1
May	66	76	49	2.71	14	7.75	1875	0.20	1891	2.75	1/53		—	15.9
June	77	84	69	3.13	15	8.58	1916	0.42	1886	2.11	1/20		—	15.8
July	76	87	68	2.64	17	5.38	1865	0.37	1899	1.75	10/65		—	17.1
August	69	77	54	2.52	16	6.24	1852	0.35	1914	2.23	19/51		—	16.4
September	61	72	44	1.97	14	4.64	1840	0.45	1896	1.42	‖		—	15.9
October	51	67	29	1.73	11	5.83	1870	0.17	1914	2.24	16/08		—	12.7
November ..	43	57	34	1.10	8	3.55	1851	0.04	1885	1.88	28/58		—	7.1
December	38	50	33	0.97	5	3.98	1861	nil	1904	2.42	23/13		—	4.8
Year: Totals ..	—	—	—	21.08	123	—		—		—			—	140.4
Year: Averages ..	53	—	—	—	—	—		—		—			—	—
Year: Extremes ..	—	87	29	—	—	8.58	6/16	nil	§	3.50	5/3/78		—	—

* 1848, 1849, 1878, and 1906. † 1848, 1860, &c. ‡ 1859, &c. ‖ 25/98 and 12/17.
§ January, February, March, and December, various years.

CLIMATOLOGICAL DATA FOR BRISBANE, QUEENSLAND.

LAT. 27° 28′ S., LONG. 153° 2′ E. HEIGHT ABOVE M.S.L. 137 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. Mn. Sea Level and Standard Gravity from 9 a.m. and 3 p.m. readings.	Wind. Greatest Number of Miles in one day.		Wind. Mean Hourly Pressure. (lbs.)	Wind. Total Miles.	Wind. Prevailing Direction.	Mean Amount of Evaporation (inches).	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m. 3 p.m. & 9 p.m.	No. of Clear Days.
No. of yrs. over which observation extends	34	10		10	10	34	12	34	29	12
January	29.874	315	24/14	0.09	4,185	E	6.533	5.4	5.8	3.1
February	29.900	340	10/15	0.12	4,440	S E	5.224	5.1	5.7	2.1
March	29.955	305	29/16	0.09	4,038	S E & S	4.738	4.4	5.3	4.7
April	30.050	252	13/19	0.07	3,591	S	3.691	3.3	4.6	8.0
May	30.091	245	29/19	0.07	3,606	S	2.775	3.0	4.4	8.1
June	30.065	307	23/18	0.07	3,420	S	2.102	2.1	4.1	8.7
July	30.073	279	19/17	0.07	3,485	S	2.309	2.5	3.7	11.8
August	30.094	250	22/17	0.08	3,822	S	2.830	3.4	3.6	11.6
September	30.033	239	25/17	0.07	3,572	S	3.696	5.7	3.5	12.1
October	29.999	325	25/18	0.09	4,134	N E & N	5.110	6.9	4.1	7.8
November	29.952	265	27/14	0.10	4,254	N E & N	5.882	8.2	4.8	5.8
December	29.884	295	21/13	0.11	4,537	N E & E	6.628	8.3	5.1	3.5
Year { Totals ..	—	—		—	—	S to E	51.518	58.3	—	87.3
Year { Averages ..	29.998	—		0.09	3,932	and N E	—	—	4.6	—
Year { Extremes ..	—	340	10/2/15	—	—	—	—	—	—	—

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature (Fahr.). Mean Max.	Mean Temperature (Fahr.). Mean Min.	Mean Temperature (Fahr.). Mean.	Extreme Shade Temperature (Fahr.). Highest.		Extreme Shade Temperature (Fahr.). Lowest.		Extreme Range.	* Extreme Temperature (Fahr.). Highest in Sun.		* Extreme Temperature (Fahr.). Lowest on Grass.		Mean Hours of Sunshine.
No. of yrs. over which observation extends	34	34	34	34		34		34	34		34		12
January	85.4	68.8	77.1	108.9	14/02	58.8	4/93	50.1	166.4	10/17	49.9	4/93	218.2
February	84.5	68.2	76.4	101.9	11/04	58.7	*	43.2	165.2	6/10	49.3	9/89	202.1
March	82.3	66.3	74.3	99.4	5/10	52.4	29/13	47.0	160.0	1/87	45.4	29/13	202.2
April	79.1	61.6	70.4	95.2	†	48.6	17/00	46.6	153.8	11/16	37.0	17/00	204.2
May	73.4	55.3	64.4	88.8	18/97	41.3	24/99	47.5	147.0	1/10	29.8	6/97	188.2
June	69.4	50.8	60.1	88.9	19/18	36.3	29/08	52.6	136.0	3/18	25.4	23/88	163.0
July	68.4	48.3	58.4	83.4	28/98	36.1	‡	47.3	146.1	20/15	23.9	11/90	191.3
August	71.2	49.8	60.5	87.5	28/07	37.4	6/87	50.1	141.9	20/17	27.1	9/99	218.7
September	75.8	54.8	65.3	95.2	16/12	40.7	1/96	54.5	155.5	26/03	30.4	1/89	230.7
October	79.8	59.9	69.9	101.4	18/93	43.3	3/99	58.1	157.4	31/18	34.9	8/89	244.6
November	83.0	64.1	73.6	106.1	18/13	48.5	2/05	57.6	162.3	7/89	38.8	1/05	237.8
December	85.3	67.5	76.4	105.9	26/93	56.4	13/12	49.5	160.4	7/14	49.1	3/94	244.7
Year { Averages ..	78.1	59.6	68.9	—		—		—	—		—		2545.7§
Year { Extremes ..	—	—	—	108.9	14/1/02	36.1	‡	72.8	166.4	10/1/17	23.9	11/7/90	—

* 10 and 11/04. † 9/96 and 5/03. ‡ 12/94 and 2/96. § Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Rel. Hum. (%). Mean 9 a.m.	Rel. Hum. (%). Highest Mean.	Rel. Hum. (%). Lowest Mean.	Rainfall (inches). Mean Monthly.	Rainfall (inches). Mean No. of Days Rain.	Rainfall (inches). Greatest Monthly.		Rainfall (inches). Least Monthly.		Rainfall (inches). Greatest in One Day.		Dew (inches). Mean Amount of Dew.	Dew (inches). Mean No. Days Dew.
No. of yrs. over which observation extends	34	34	34	69	61	69		69		—		—	34
January	67	79	53	6.50	14	27.72	1895	0.32	1919	18.31	21/87	—	4.6
February	70	82	55	6.41	14	40.39	1893	0.58	1849	8.36	16/93	—	5.0
March	72	85	58	5.86	15	34.04	1870	nil	1849	11.18	14/08	—	8.2
April	73	79	60	3.58	12	16.28	1867	0.04	1897	4.47	13/16	—	11.1
May	74	85	64	2.93	10	13.65	1876	nil	1846	5.62	9/79	—	11.9
June	73	82	67	2.57	8	14.03	1873	nil	1847	6.01	9/93	—	9.9
July	74	81	61	2.22	8	8.46	1889	nil	1841	3.54	†	—	11.3
August	70	80	6P	2.19	8	14.67	1879	nil	*	4.89	12/87	—	9.0
September	65	76	47	2.08	8	5.43	1886	0.10	1907	2.46	2/94	—	8.9
October	61	72	49	2.64	9	9.99	1882	0.14	1900	1.95	20/89	—	6.9
November	60	72	46	3.67	10	12.40	1917	nil	1842	4.46	16/86	—	3.9
December	63	67	52	4.87	12	13.99	1910	0.85	1865	6.60	28/71	—	3.3
Year { Totals ..	—	—	—	45.52	128	—		—		—		—	94.0
Year { Averages ..	69	—	—	—	—	—		—		—		—	—
Year { Extremes ..	—	85	46	—	—	40.39	2/1893	nil	‡	18.31	21/1/87	—	—

* 1852, 1889, 1880. † 15/76, 16/99. ‡ March, May, June, July, August, and November, various years.

CLIMATOLOGICAL DATA FOR SYDNEY, N.S.W.

LAT. 33° 52′ S., LONG. 151° 12′ E. HEIGHT ABOVE M.S.L. 138 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. Mn. Sea Level and Standard Gravity from 24 hourly readings.	Wind. Greatest Number of Miles in one day.		Wind. Mean Hourly Pressure. (lbs.)	Wind. Total Miles.	Wind. Prevailing Direction.	Mean Amount of Evaporation (Inches).	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m., 3 p.m., & 9 p.m.	No. of Clear Days.
No. of yrs. over which observation extends	62	54		54	*54	54	41	61	59	57
January	29.901	721	1/71	0.36	8,138	N E	5.239	4.7	5.8	2.0
February	29.947	871	12/69	0.30	6,985	N E	4.085	4.3	6.0	1.4
March	30.015	943	20/70	0.24	6,764	N E	3.506	4.2	5.6	2.0
April	30.076	803	6/82	0.19	6,116	N E	2.502	4.0	5.0	2.7
May	30.084	758	6/98	0.24	6,[illegible]40	W	1.729	3.3	4.8	3.4
June	30.059	712	7/00	0.30	6,956	W	1.406	2.2	4.8	3.5
July	30.064	930	17/79	0.30	7,085	W	1.493	2.4	4.4	4.5
August	30.075	756	22/72	0.24	6,898	W	1.831	3.2	4.1	4.6
September.. ..	30.014	964*	6/74	0.30	7,111	W	2.625	4.1	4.8	4.2
October	29.972	926*	4/72	0.30	7,729	N E	3.764	4.9	5.0	2.5
November ..	29.931	720	13/68	0.30	7,600	N E	4.524	5.5	5.6	1.7
December	29.885	938	3/84	0.36	8,038	N E	5.206	5.7	5.6	2.0
Year Totals ..	—	—		—	—	—	38.004	48.5	—	34.5
Year Averages ..	30.002	—		0.29	7,142	N E	—	—	5.1	—
Year Extremes ..	—	964	6/9/74	—	—	—	—	—	—	—

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature (Fahr.). Mean Max.	Mean Temperature (Fahr.). Mean Min.	Mean Temperature (Fahr.). Mean	Extreme Shade Temperature (Fahr.). Highest.		Extreme Shade Temperature (Fahr.). Lowest.		Extreme Range.	Extreme Temperature (Fahr.). Highest in Sun.		Extreme Temperature (Fahr.). Lowest on Grass.		Mean Hours of Sunshine.
No. of yrs. over which observation extends	62	62	62	62		62		62	62		62		10
January	78.4	64.9	71.7	108.5	13/96	51.2	14/65	57.3	164.3	26/16	44.2	18/97	195.9
February	77.4	64.9	71.2	101.0	19/66	49.3	28/63	51.7	162.1	16/98	43.4	25/91	173.2
March	75.5	62.9	69.3	102.6	3/69	48.8	14/86	53.8	150.3	4/89	39.9	17/13	187.6
April	71.1	58.0	64.6	89.0	4/09	44.6	27/64	44.4	144.1	10/77	33.3	24/09	148.8
May	65.2	52.1	58.6	86.0	1/19	40.2	22/59	45.8	129.7	1/96	29.3	25/17	181.4
June	60.7	48.2	54.5	75.5	13/19	38.0	5/20	37.5	123.0	14/78	28.1	24/11	111.4
July	59.2	45.8	52.5	74.9	17/71	35.9	12/90	39.0	124.7	19/77	24.0	4/93	124.9
August	62.4	47.6	55.0	82.0	31/84	36.8	3/72	45.2	149.0	30/78	26.1	4/09	170.8
September.. ..	66.7	51.4	59.1	92.3	27/19	40.8	18/64	51.5	142.2	12/78	30.1	17/05	179.6
October	71.2	55.8	63.5	99.7	19/98	43.3	2/99	56.4	151.9	*	32.7	9/05	195.7
November ..	74.4	59.6	67.1	102.7	21/78	45.8	1/05	56.9	158.5	28/99	36.0	6/06	185.2
December	77.8	62.9	70.1	107.5	21/04	49.3	2/59	58.2	171.5	4/88	41.5	6/09	196.7
Year Averages ..	70.0	56.2	63.1	—		—		—	—		—		1906.2†
Year Extremes ..	—	—	—	108.5	13/1/96	35.9	12/7/90	72.6	171.5	4/12/88	24.0	4/7/93	

* 30 and 31/14. † Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Rel. Hum. (%). Mean 9 a.m.	Rel. Hum. (%). Highest Mean.	Rel. Hum. (%). Lowest Mean.	Rainfall (inches). Mean Monthly.	Rainfall (inches). Mean No. of Days Rain.	Rainfall (inches). Greatest Monthly.		Rainfall (inches). Least Monthly.		Rainfall (inches). Greatest in One Day.		Dew (inches). Mean Amount of Dew.	Dew (inches). Mean No. Days Dew.
No. of yrs. over which observation extends	62	62	62	62	62	62		62		62		61	61
January	69	78	58	3.62	14.1	15.26	1911	0.42	1888	7.08	13/11	0.002	1.2
February	72	81	59	4.51	14.1	18.56	1873	0.34	1902	8.90	25/73	0.004	2.0
March	74	85	63	5.06	14.9	18.70	1870	0.42	1876	6.52	9/13	0.008	3.3
April	77	87	63	5.38	13.5	24.49	1861	0.06	1866	7.52	29/60	0.016	5.5
May	76	90	66	5.13	15.0	23.03	1919	0.18	1860	8.36	28/89	0.022	6.2
June	78	89	68	4.96	12.6	16.30	1885	0.19	1902	5.17	16/84	0.018	5.8
July	77	88	65	4.84	12.5	13.21	1900	0.12	1862	5.72	28/08	0.016	5.3
August	73	84	56	3.06	11.4	14.89	1899	0.04	1885	5.33	2/60	0.014	4.9
September ..	69	79	49	[illegible]	12.0	14.05	1879	0.08	1882	5.69	10/79	0.008	3.4
October	67	77	47	2.95	12.6	11.14	1916	0.21	1867	6.37	13/02	0.007	3.0
November ..	66	79	42	2.88	12.5	9.68	1865	0.07	1915	4.23	19/00	0.004	2.1
December	67	77	52	2.83	13.0	15.82	1920	0.23	1913	4.75	13/10	0.003	1.4
Year Totals ..	—	—	—	48.12	158.2	—		—		—		0.122	48.6
Year Averages ..	72	—	—	—	—	—		—		—		—	—
Year Extremes ..	—	90	42	—	—	24.49	April/61	0.04	Aug./85	8.90	25/2/73	—	—

CLIMATOLOGICAL DATA FOR MELBOURNE, VICTORIA.

LAT. 37° 49′ S., LONG. 144° 58′ E. HEIGHT ABOVE M.S.L. 115 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. Mn. Sea Level and Standard Gravity from 9 a.m., 3 & 9 p.m. readings.	Wind. Greatest Number of Miles in One Day.		Wind. Mean Hourly Pressure. (lbs.)	Wind. Total Miles.	Wind. Prevailing Direction.	Mean Amount of Evaporation (Inches.)	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m., 3 p.m. & 9 p.m.	No. of Clear Days.
No. of yrs. over which observation extends	63	49		49	49	49	48	13	63	13
January	29.914	583	10/97	0.29	7,345	S W, S E	6.41	1.8	5.0	7.8
February	* 29.962	566	8/68	0.28	6,441	S W, S E	5.04	2.0	5.0	7.1
March	30.032	677	9/81	0.22	6,398	S W, S E	3.94	1.7	5.5	4.9
April	30.104	597	7/68	0.19	5,719	S W, N W	2.35	0.9	5.9	4.2
May	30.106	693	12/65	0.19	5,958	N W, N E	1.47	0.5	6.5	3.1
June	30.073	761	13/76	0.24	6,461	N W, N E	1.10	1.0	6.7	2.0
July	30.095	755	8/74	0.23	6,482	N W, N E	1.06	0.7	6.3	3.5
August	30.064	637	14/75	0.26	6,882	N W, N E	1.48	0.9	6.3	2.7
September	29.998	617	11/72	0.29	7,108	N W, S W	2.30	1.8	6.1	3.5
October	29.968	899	5/66	0.29	7,377	S W, N W	3.34	1.9	6.0	4.3
November	29.951	734	13/66	0.29	7,083	S W, S E	4.55	2.2	5.9	3.5
December	29.898	655	1/75	0.30	7,503	S W, S E	5.77	2.0	5.5	4.6
Year { Totals ..	—	—		—	—	—	38.81	17.4	—	51.2
Year { Averages ..	30.014	—		0.26	6,730	S W, N W	—	—	5.9	—
Year { Extremes ..	—	899	5/10/66	—	—	—	—	—	—	—

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature (Fahr.) Mean Max.	Mean Temperature (Fahr.) Mean Min.	Mean Temperature (Fahr.) Mean.	Extreme Shade Temperature (Fahr.). Highest.		Extreme Shade Temperature (Fahr.). Lowest.		Extreme Range.	Extreme Temperature (Fahr.). Highest in Sun.		Extreme Temperature (Fahr.). Lowest on Grass.		Mean Hours of Sunshine.
No. of yrs. over which observation extends	65	65	65	65		65		65	61		61		39
January	78.1	56.7	67.4	111.2	14/62	42.0	28/85	69.2	178.5	14/62	30.2	28/85	245.8
February	77.9	57.0	67.5	109.5	7/01	40.8	9/65	69.2	167.5	15/70	30.9	6/91	208.9
March	74.3	54.6	64.5	105.5	2/93	37.1	17/84	68.4	164.5	1/68	28.9	*	172.8
April	68.3	50.7	59.5	94.0	6/65	34.8	24/88	59.2	152.0	8/01	25.0	23/97	136.3
May	61.4	46.7	54.0	83.7	7/05	29.9	29/16	53.8	142.6	2/59	21.1	26/16	110.6
June	56.8	44.1	50.4	72.2	1/07	28.0	11/66	44.2	129.0	11/61	20.4	17/95	85.3
July	55.5	41.7	48.6	68.4	24/78	27.0	21/69	41.4	125.8	27/80	20.5	12/03	102.9
August	58.8	43.4	51.1	77.0	20/85	28.3	11/63	48.7	137.4	29/69	21.3	14/02	125.3
September	62.6	45.6	54.1	85.0	19/19	31.1	16/08	53.9	142.1	20/67	22.8	8/18	145.7
October	67.0	48.2	57.6	98.4	24/14	32.1	3/71	66.3	154.3	28/68	24.8	22/18	176.9
November	71.4	51.2	61.3	105.7	27/94	36.5	2/96	69.2	159.6	29/65	24.6	2/06	208.3
December	75.4	54.2	64.8	110.7	15/76	40.0	4/70	70.7	170.3	20/69	33.2	1/04	232.7
Year { Averages ..	67.3	49.5	58.4	—		—		—	—		—		1951.5†
Year { Extremes ..	—	—	—	111.2	14/1/62	27.0	21/7/69	84.2	178.5	14/1/62	20.4	17/6/95	—

* 17/1884 and 20/1897. † Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Rel. Hum. (%) Mean 9 a.m.	Rel. Hum. (%) Highest Mean.	Rel. Hum. (%) Lowest Mean.	Rainfall (Inches). Mean Monthly.	Rainfall (Inches). Mean No. of Days Rain.	Rainfall (Inches). Greatest Monthly.		Rainfall (Inches). Least Monthly.		Rainfall (Inches). Greatest in One Day.		Dew (Inches). Mean Amount of Dew.	Dew (Inches). Mean No. Days Dew.
No. of yrs. over which observation extends	13	13	13	65	65	65		65		65		—	13
January	58	65	50	1.84	7	5.68	1904	0.04	1878	2.97	9/97	—	2.5
February	61	69	53	1.70	7	6.24	1904	0.03	1870	3.37	18/19	—	3.2
March	64	71	57	2.25	9	7.50	1911	0.18	1859	3.55	5/19	—	7.5
April	71	78	66	2.26	11	6.71	1901	0.33	1908	2.28	22/01	—	8.5
May	78	84	73	2.18	13	4.31	1862	0.45	1901	1.85	7/91	—	7.8
June	82	87	77	2.10	14	4.51	1859	0.73	1877	1.74	21/04	—	7.9
July	82	86	76	1.88	14	7.02	1891	0.57	1902	2.71	12/91	—	10.2
August	76	82	70	1.83	14	3.59	1909	0.48	1903	1.87	17/81	—	7.0
September	69	76	60	2.45	14	7.93	1916	0.52	1907	2.62	12/80	—	6.5
October	62	67	56	2.61	13	7.61	1869	0.29	1914	3.00	17/69	—	6.6
November	59	69	53	2.34	11	6.71	1916	0.25	1895	2.57	16/76	—	1.8
December	56	69	51	2.37	9	7.18	1863	0.11	1904	2.62	28/07	—	1.6
Year { Totals ..	—	—	—	25.76	136	—		—		—		—	72.0
Year { Averages ..	68	—	—	—	—	—		—		—		—	—
Year { Extremes ..	—	87	50	—	—	7.93	9/16	0.03	2/70	3.55	5/3/19	—	—

CLIMATOLOGICAL DATA FOR HOBART, TASMANIA.

LAT. 42° 53′ S., LONG. 147° 20′ E. HEIGHT ABOVE M.S.L. 177 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. Mn. Sea Level and Standard Gravity from 9 a.m. and 3 p.m. readings.	Wind. Greatest Number of Miles in one day.		Wind. Mean Hourly Pressure. (lbs.)	Wind. Total Miles.	Wind. Prevailing Direction.	Mean Amount of Evaporation (inches).	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m. 3 p.m., & 9 p.m.	No. of Clear Days.
No. of yrs. over which observation extends	36	10		10	10	16	10	13	58	14
January	29.832	500	30/16	0.19	5,958	N W & S E	5.401	0.6	5.9	3.1
February	29.922	393	19/13	0.13	4,433	S E & N	3.910	1.2	5.9	2.7
March	29.939	406	8/15	0.12	4,800	N & S E	2.980	1.2	5.9	2.0
April	29.959	432	7/17	0.13	4,719	N W & S E	2.016	0.8	6.0	1.7
May	29.989	411	3/16	0.12	4,741	N & N W	1.355	0.6	6.0	2.0
June	29.939	569	27/20	0.13	4,764	N & N W	0.853	0.7	6.0	1.6
July	29.932	396	17/11	0.12	4,588	N & N W	0.971	0.5	5.7	2.6
August	29.928	459	30/11	0.13	4,842	N & N W	1.209	0.7	5.9	2.1
September	29.846	516	26/15	0.18	5,613	N & N W	1.988	0.9	6.1	1.9
October	29.840	461	8/12	0.18	5,814	N W & S E	3.168	0.8	6.2	1.7
November ..	29.802	508	18/15	0.19	5,781	N W & S E	3.951	0.9	6.3	1.7
December	29.808	486	30/20	0.18	5,770	N W & S E	4.713	1.4	6.2	1.3
Year Totals ..	—		—	—	61,823	—	32.414	10.3	—	24.4
Year Averages ..	29.895		—	0.16	—	N	—	—	6.0	—
Year Extremes ..	—	569	27/6/20	—	—	—	—	—	—	—

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature (Fahr.). Mean Max.	Mean Temperature (Fahr.). Mean Min.	Mean Temperature (Fahr.). Mean.	Extreme Shade Temperature (Fahr.). Highest.		Extreme Shade Temperature (Fahr.). Lowest.		Extreme Range.	Extreme Temperature (Fahr.). Highest in Sun.		Extreme Temperature (Fahr.). Lowest on Grass.		Mean Hours of Sunshine.
No. of yrs. over which observation extends	50	50	50	74		74		74	33		53		26
January	71.4	53.0	62.2	105.0	1/00	40.3	*	64.7	160.0	†	30.6	19/97	207.4
February	71.5	53.3	62.4	104.4	12/99	39.0	20/87	65.4	165.0	24/98	28.3	–/87	174.8
March	68.0	50.8	59.4	98.8	5/46	36.0	31/05	62.8	150.0	3/05	27.5	30/02	166.9
April	62.7	47.6	55.2	90.0	2/56	30.0	25/56	60.0	142.0	18/93	25.0	–/86	136.4
May	57.3	43.6	50.4	77.5	1/41	29.2	20/02	48.3	128.0	‡	20.0	19/02	128.9
June	52.7	41.0	46.8	75.0	7/74	28.0	22/79	47.0	122.0	12/94	21.0	6/87	99.5
July	51.8	39.1	45.4	72.0	22/77	27.0	18/66	45.0	118.7	19/96	18.7	16/86	122.7
August	55.0	41.0	48.0	77.0	3/76	30.0	10/73	47.0	129.0	–/87	20.1	7/09	139.2
September	58.7	43.1	50.9	80.0	9/72	30.0	12/41	50.0	138.0	23/98	22.7	–/86	141.5
October	62.8	45.4	54.1	92.0	24/14	32.0	12/89	60.0	156.0	9/93	23.8	§	166.5
November ..	66.2	48.2	57.2	98.0	20/88	35.2	5/13	62.8	154.0	19/92	26.0	1/08	192.9
December	69.5	51.2	60.4	105.2	30/97	38.0	13/06	67.2	161.0	24/20	27.2	–/86	192.1
Year Averages ..	62.3	46.4	54.4	—		—		—	—		—		1,868.8‖
Year Extremes ..	—	—	—	105.2	30/12/97	27.0	18/7/66	78.2	165.0	24/2/98	18.7	16/7/86	

* 3/72 and 2/06. † 5/86 and 13/05. ‡ –/88 and –/92. § 1/86 and –/99. ‖ Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Rel. Hum. (%) Mean 9 a.m.	Rel. Hum. (%) Highest Mean.	Rel. Hum. (%) Lowest Mean.	Rainfall (inches). Mean Monthly.	Rainfall (inches). Mean No. of Days Rain.	Rainfall (inches). Greatest Monthly.		Rainfall (inches). Least Monthly.		Rainfall (inches). Greatest in One Day.		Dew (inches) Mean Amount of Dew.	Dew (inches) Mean No. days Dew.
No. of yrs. over which observation extends	40	40	40	78	77	78		78		54		—	11
January	64	75	51	1.78	9	5.91	1893	0.03	1841	2.96	30/16	—	1.0
February	65	76	51	1.44	8	9.15	1854	0.07	1847	4.50*	25/54	—	2.3
March	70	76	59	1.70	10	7.60	1854	0.02	1843	2.79	5/19	—	4.4
April	74	85	60	1.89	11	6.50	1909	0.07	1904	5.02	20/09	—	10.8
May	79	90	68	1.87	13	8.37	1905	0.10	1843	3.22	14/58	—	13.0
June	83	94	78	2.20	14	8.15	1889	0.22	1852	4.11	14/89	—	6.9
July	81	97	74	2.12	14	5.98	1849	0.30	1850	2.00	27/78	—	7.9
August	78	92	64	1.83	14	10.16	1858	0.23	1854	4.36	12/58	—	7.7
September	71	87	60	[illegible]	14	7.14	1844	0.29	1847	2.50	29/44	—	4.5
October	67	75	51	2.23	15	6.67	1906	0.26	1850	2.58	4/06	—	3.1
November ..	64	73	51	2.51	14	8.92	1849	0.16	1868	3.97	6/49	—	1.4
December	62	73	49	1.97	11	9.00	1875	0.11	1842	2.48	13/16	—	1.0
Year Totals ..	—	—	—	23.66	147	—		—		—		—	63.5
Year Averages ..	71	—	—	—	—	—		—		—		—	—
Year Extremes ..	—	97	49	—	—	10.16	8/1858	0.02	3/1843	5.02 *	20/4/09	—	—

* 4.15, 26/54 also.

SECTION IV.

POPULATION.

[In order to permit of the incorporation of the latest available details in regard to the Census of 1921, this Section has been transferred to the end of the present issue of the Official Year Book, and appears after Section XXXIV. It will, however, be placed n its usual order in succeeding issues.]

SECTION V.

VITAL STATISTICS.

NOTE.—The rates quoted throughout this Section for the years 1914 to 1920 have been calculated in accordance with the corrected populations as determined by the results of the Census of 1911.

§ 1. Births.

1. Male and Female Births, 1914 to 1920.—The total number of male and female births registered in the Commonwealth during the years 1914 to 1920 is shewn in the two tables hereunder :—

TOTAL MALE BIRTHS, COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Territory.	Common-wealth.
1914 ..	27,452	18,545	10,120	6,668	4,663	3,094	31	31	70,604
1915 ..	27,085	17,820	10,444	6,076	4,578	2,991	33	22	69,049
1916 ..	26,615	17,623	9,673	6,200	4,439	2,873	44	38	67,505
1917 ..	27,002	17,220	10,058	5,762	4,058	2,720	42	21	66,883
1918 ..	26,002	16,172	10,080	5,787	3,615	2,717	59	26	64,458
1919 ..	24,924	16,225	9,746	5,776	3,477	2,718	55	10	62,931
1920 ..	27,691	18,647	10,537	6,178	4,256	2,908	31	8	70,256

TOTAL FEMALE BIRTHS, COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Territory.	Common-wealth.
1914 ..	26,189	17,677	9,762	6,236	4,541	2,923	27	24	67,379
1915 ..	25,846	17,189	9,719	5,722	4,439	2,854	28	25	65,822
1916 ..	25,465	16,612	9,239	5,657	4,124	2,769	30	25	63,921
1917 ..	25,446	15,813	9,729	5,564	3,824	2,656	27	23	63,082
1918 ..	24,707	15,425	9,456	5,570	3,491	2,563	46	23	61,281
1919 ..	23,608	15,394	8,953	5,284	3,460	2,592	51	17	59,359
1920 ..	26,251	17,566	9,719	5,850	3,893	2,832	32	7	66,150

2. Total Births, 1914 to 1920.—The total number of births for the Commonwealth in 1914 was the greatest number ever recorded, but the figures for the five years 1915 to 1919 shewed a falling off as compared with those for 1914. There was a recovery in 1920 when the total reached 136,406, which was the second greatest number of births registered in one year.

TOTAL BIRTHS, COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	C'wealth.
1914 ..	53,641	36,222	19,882	12,904	9,204	6,017	58	55	137,983
1915 ..	52,931	35,009	20,163	11,798	9,017	5,845	61	47	134,871
1916 ..	52,080	34,235	18,912	11,857	8,563	5,642	74	63	131,426
1917 ..	52,448	33,033	19,787	11,326	7,882	5,376	69	44	129,965
1918 ..	50,709	31,597	19,536	11,357	7,106	5,280	105	49	125,739
1919 ..	48,532	31,619	18,699	11,060	6,937	5,310	106	27	122,290
1920 ..	53,942	36,213	20,256	12,028	8,149	5,740	63	15	136,406

3. Birth Rates, 1914 to 1920.—(i) *Crude Birth Rate.* The most notable feature of the table shewing the crude birth rate is the continual fall from 1914 to 1919. This feature, which is doubtless due to the war, is exhibited in all the States. Though an increase took place in 1920, the birth rate is still very much below that of pre-war years. The rates in the Territories shew considerable fluctuation, but the numbers are too small to allow of any deductions therefrom.

CRUDE BIRTH RATE (a), COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W.Aust.	Tas.	North. Terr.	Federal Territory.	C'wlth.
1914	28.96	25.45	29.46	29.33	28.45	30.33	15.46	20.79	28.05
1915	28.33	24.55	29.35	26.84	27.97	29.32	13.85	19.05	27.25
1916	27.89	24.29	27.91	27.39	27.21	28.47	15.26	24.11	26.78
1917	28.06	23.50	29.09	26.21	25.54	27.03	13.92	17.65	26.51
1918	26.53	22.29	28.37	25.80	22.84	25.91	21.03	20.19	25.25
1919	24.68	21.56	26.23	24.27	21.44	25.12	22.05	11.68	23.78
1920	26.59	24.07	27.58	25.45	24.40	26.37	14.37	6.90	25.74
Density (b) (No. per square mile) ..	6.62	17.29	1.10	1.25	0.34	8.41	0.008	2.10	1.80

(a) Number of births per 1,000 of the mean annual population. (b) On 31st December, 1919.

The population density of each State and of the Commonwealth has been given for the purpose of considering the influence, if any, of concentration of population on birth rate, in connection with the disparities of the rate in different parts of Australia.

(ii) *Objections to Crude Birth Rate.* The figures just given represent the "crude birth rate," *i.e.*, the number of births per thousand of mean annual population. The number of births per thousand of the female population of child-bearing ages, *i.e.*, from 15 to 45, furnishes, however, a more significant rate. This calculation has been made for the four last Census periods, and covers in each case the Census year, together with the year immediately preceding and the year immediately following. The following results have been obtained for the four Census periods :—Total births per 1,000 women (married and unmarried) of ages 15 to 45 :—Years 1880–82, 169.69 ; years 1890–92, 158.81 ; years 1900–02, 117.26 ; years 1910–12, 117.22. Nuptial births per 1,000 married women of ages 15 to 45 :—Years 1880–82, 320.96 ; years 1890–92, 332.03 ; years 1900–02, 235.84 ; years 1910–12, 236.06.

4. Birth Rates of Various Countries.—A comparison with other countries shews that the Australian States occupy a rather low position, which is, however, fortunately counterbalanced by a still lower position in regard to their death rates, as will be seen from the table hereinafter in the section dealing with "Deaths." It will be noticed that, owing to the difficulty of procuring statistics in regard to the belligerent countries in the late war, many of the rates quoted for continental countries are for rather remote years. Consequently it is not suggested that the comparison instituted in the attached table is exact. This does not however affect the general proposition that Australia takes a low position amongst the countries of the world, both as regards crude birth rate and crude death rate.

CRUDE BIRTH RATE (*a*) OF VARIOUS COUNTRIES.

Country.	Year.	Rate.	Country.	Year.	Rate.
Russia, European ..	1909	44.0	**Australia** ..	**1920**	**25.7**
Rumania	1914	42.5	South Australia ..	1920	25.5
Bulgaria	1911	40.2	United Kingdom ..	1920	25.4
Serbia	1912	38.0	England and Wales	1920	25.4
Chile	1914	37.0	United States (*b*) ..	1918	24.4
Hungary	1912	36.3	Norway	1918	24.4
Quebec (Canada) ..	1917	35.7	Western Australia ..	1920	24.4
Ceylon	1919	34.2	Finland	1917	24.3
Jamaica	1917	34.1	Netherlands ..	1919	24.2
Japan	1916	32.9	Victoria	1920	24.1
Austria	1912	31.3	Denmark	1919	22.7
Union of South Africa (whites)	1918	28.6	Ireland	1920	22.7
Spain	1919	28.3	Belgium	1912	22.6
Prussia	1913	28.2	Ontario (Canada) ..	1919	22.1
Scotland	1920	28.1	New Zealand ..	1919	21.5
Queensland	1920	27.6	Sweden	1918	20.3
Germany	1913	27.5	Italy	1917	19.0
New South Wales ..	1920	26.6	France	1913	19.0
Tasmania	1920	26.4	Switzerland ..	1918	18.4

(*a*) Number of births per 1,000 of the mean population. (*b*) Figures for "provisional birth-registration area," which includes about 53 per cent. of the population.

The wide discrepancies among the crude birth rates of the various countries are, to some extent, due to differences in sex and age constitution and in conjugal condition. If the birth rates be calculated per 1,000 women of child-bearing ages, the comparison shews very different results. The report for 1908 of the Registrar-General for England and Wales contains a table shewing the nuptial births per 1,000 married women of ages 15 to 45 in a number of countries, and the information here given in regard to the period 1900–1902 is taken therefrom.

NUPTIAL BIRTHS PER 1,000 MARRIED WOMEN, AGED 15-45 YEARS, 1900-1902.

Country.	Rate.	Country.	Rate.
Netherlands	314.6	Switzerland	265.9
Norway	302.8	Denmark	259.1
Prussia	290.4	Spain	258.7
Ireland	289.4	Belgium	250.7
Germany	284.2	New Zealand	243.2
Austria	283.7	**Australia**	**235.8**
Scotland	271.8	England and Wales ..	235.5
Italy	269.4	France	157.5
Sweden	269.0		

5. **Masculinity at Birth.**—The masculinity of births, *i.e.*, the excess of males over females per 100 births, registered during the last seven years in the several States of the Commonwealth has, apart from the Northern Territory and the Federal Territory, the figures for which are useless for comparative purposes on account of the smallness of the returns on which they are based, varied from 0.25 in Western Australia in 1919 to 4.58 in South Australia in 1916. The following table, which gives the values for the States and Commonwealth for 1914 to 1920, shews that for the Commonwealth there was a steady increase of masculinity from 1914 to 1917, with a sharp fall in 1918, and a recovery in 1919 and 1920.

MASCULINITY (*a*) OF BIRTHS REGISTERED, COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern Territory.	Federal Territory.	C'wealth.
1914 ..	2.35	2.40	1.80	3.35	1.33	2.84	6.90	12.73	2.34
1915 ..	2.34	1.80	3.60	3.00	1.54	2.34	8.20	−6.38	2.39
1916 ..	2.21	2.95	2.29	4.58	3.68	1.84	18.92	20.63	2.73
1917 ..	2.97	4.26	1.66	1.75	2.97	1.19	21.74	−4.55	2.92
1918 ..	2.55	2.36	3.19	1.91	1.75	2.92	12.38	6.12	2.53
1919 ..	2.71	2.63	4.24	4.45	0.25	2.37	3.77	−25.93	2.92
1920 ..	2.67	2.99	4.04	2.73	4.45	1.32	−1.59	6.67	3.01

(*a*) Excess of males over females per 100 total births.

There is ordinarily a very small difference between the masculinity of nuptial and ex-nuptial births. Thus, according to Bodio, whose figures are quoted in the following table, for the period about 1887–1891, the masculinity in various countries ranged from 3.98 to 1.77, and from 3.80 to 0.79 for total and ex-nuptial births respectively.

MASCULINITY OF BIRTHS IN VARIOUS COUNTRIES.

Country.	Masculinity of Births.(*a*) All Live Births.	Masculinity of Births.(*a*) Ex-nuptial Live Births.	Country.	Masculinity of Births.(*a*) All Live Births.	Masculinity of Births.(*a*) Ex-nuptial Live Births.
Spain	3.98	3.80	Germany	2.53	2.29
Rumania	3.71	1.67	Finland	2.44	2.53
Portugal	3.61	3.10	Hungary	2.44	1.43
Austria	2.82	2.68	Sweden	2.44	2.10
Italy	2.82	2.15	Denmark	2.34	2.44
Norway	2.82	2.87	Serbia	2.30	1.72
Ireland	2.68	2.34	France	2.25	1.43
Netherlands ..	2.68	2.29	Belgium	2.20	1.08
Scotland	2.68	2.87	Switzerland ..	2.20	0.79
Russia, European ..	2.63	2.20	England	1.77	2.15

(*a*) Excess of males over females per 100 total births.

The masculinity of ex-nuptial births in the Commonwealth was as follows :—

MASCULINITY (a) OF EX-NUPTIAL BIRTHS REGISTERED, COMMONWEALTH, 1914 TO 1920.

Year	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern Territory.	Federal Territory.	C'wlth.
1914 ..	4.44	3.92	2.26	5.20	3.61	0.85	14.29	..	3.73
1915 ..	−0.72	1.09	−0.37	0.85	0.26	0.32	−17.65	..	0.00
1916 ..	1.67	4.71	6.83	5.68	0.31	−5.26	−6.67	33.33	3.22
1917 ..	2.21	3.61	3.43	0.00	−7.65	5.63	25.00	−100.00	2.34
1918 ..	1.33	−1.68	5.07	−6.14	−5.59	−0.36	14.29	..	0.24
1919 ..	4.03	0.22	8.91	4.84	−2.74	7.98	0.00	−100.00	4.03
1920 ..	3.87	8.20	11.52	−2.22	5.36	−3.63	−6.67	..	5.60

(a) Excess of males over females per 100 total births.

It is curious to note that while, so far as the total births are concerned, there has always been an excess of male births over female births in the period under review, this has not been the case in regard to ex-nuptial births, since in Tasmania, South Australia and Western Australia a large negative masculinity has been experienced. Little weight, however, can be attached to those results on account of the small totals on which they are based, and for the same reason the figures for the Northern Territory and Federal Territory are not taken into consideration.

6. Ex-nuptiality of Births.—The number of ex-nuptial births reached its maximum in 1913. From that year there was a sharp fall till 1916, with a subsequent slight recovery.

It is, of course, possible that the number of ex-nuptial births is somewhat understated, owing to diffidence in proclaiming the fact of ex-nuptiality, and it is not unlikely that the majority of unregistered births are ex-nuptial.

TOTAL EX-NUPTIAL BIRTHS REGISTERED IN THE COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern Territory.	Federal Territory.	C'wealth.
1914 ..	2,836	2,015	1,148	500	388	355	21	..	7,263
1915 ..	2,633	2,012	1,082	472	383	311	17	..	6,910
1916 ..	2,461	1,763	966	458	321	285	15	3	6,272
1917 ..	2,485	1,828	992	448	327	284	16	1	6,379
1918 ..	2,625	1,849	1,066	456	286	279	21	..	6,582
1919 ..	2,495	1,826	1,078	433	292	326	26	1	6,477
1920 ..	2,582	1,902	1,033	450	317	303	15	..	6,602

(i) *Rate of Ex-nuptiality, 1914 to 1920.* The rate of ex-nuptiality, *i.e.*, the percentage on ex-nuptial to total births, has been fairly stationary during the last seven years on the whole, although 1916, 1917, and 1920 shewed a decline.

PERCENTAGE OF EX-NUPTIAL ON TOTAL BIRTHS, COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern Territory.	Federal Territory.	C'wealth.
	%	%	%	%	%	%	%	%	%
1914 ..	5.29	5.56	5.77	3.87	4.22	5.90	36.21	..	5.26
1915 ..	4.97	5.74	5.36	4.00	4.24	5.32	27.87	..	5.12
1916 ..	4.73	5.15	5.11	3.80	3.75	5.05	20.27	4.76	4.77
1917 ..	4.74	5.53	5.01	3.96	4.15	5.28	23.19	2.27	4.91
1918 ..	5.18	5.85	5.46	4.02	4.02	5.28	20.00	..	5.23
1919 ..	5.14	5.77	5.76	3.92	4.21	6.14	24.53	3.70	5.30
1920 ..	4.79	5.25	5.10	3.74	3.89	5.28	23.81	..	4.84

A comparison of greater significance is obtained by calculating the number of ex-nuptial births per thousand of the single and widowed female population between the ages of 15 and 45. The calculation has been made for the last four Census periods, and covers in each case the Census year, together with the year immediately preceding and the year immediately following. The number of ex-nuptial births per 1,000 unmarried women of ages 15 to 45 has been found to be as follows :—Years 1880–82, 14.49 ; years 1890–92, 15.93 ; years 1900–02, 13.30 ; years 1910–12, 12.53. Corresponding figures for the countries the nuptial birth rates of which were shewn in a preceding paragraph are here given for the sake of comparison :—

EX-NUPTIAL BIRTHS PER 1,000 UNMARRIED WOMEN AGED 15-45 YEARS, 1900 TO 1902.

Country.	Rate.	Country.	Rate.
Austria	40.1	Spain	15.5
Germany	27.4	Scotland	13.4
Sweden	24.3	**Australia**	**13.3**
Denmark	24.2	Switzerland	9.8
Prussia	23.7	New Zealand	8.9
Italy	19.4	England and Wales	8.5
France	19.1	Netherlands	6.8
Belgium	17.8	Ireland	3.8
Norway	17.2		

(ii) *Comparison of Rates.* Since the rate of ex-nuptiality might appear to increase by the mere decrease in the general birth rate, the following table has been prepared, which shews that this is not the case :—

CRUDE EX-NUPTIAL, NUPTIAL, AND TOTAL BIRTH RATES (*a*), COMMONWEALTH, 1914 TO 1920.

Rates.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Ex-nuptial ..	1.48	1.40	1.28	1.30	1.32	1.26	1.24
Nuptial	26.57	25.85	25.50	25.21	23.93	22.52	24.50
Total	28.05	27.25	26.78	26.51	25.25	23.78	25.74

(*a*) Number of births per 1,000 of mean population.

7. **Multiple Births.**—Among the total number of 136,406 births registered in the Commonwealth in 1920 there were 133,354 single births, 3,005 twins, and 47 triplets. The number of cases of twins was 1,505, there being 5 stillbirths, and the

number of cases of triplets 16. The total number of mothers was, therefore (1 still-birth), 134,875, the proportion of mothers of twins being one in every 90, and of mothers of triplets one in every 8,430 of total mothers. The proportion of multiple births is a fairly constant one. In 1914 they numbered 1,401, or one in 97; in 1915, 1,417, or one in 94; in 1916, 1,383, or one in 95; in 1917, 1,477, or one in 86; in 1918, 1,370, or one in 91; in 1919, 1,327, or one in 91; and in 1920, 1521, or 1 in 89. The number of cases of *triplets is so small that a slight alteration in the total will completely change the proportion.* Thus, they were one in 12,415 in 1914; one in 13,444 in *1915; one in 10,952 in 1916; one in 7,558 in 1917; one in 15,545 in 1918;* one in 8,064 in 1919; and one in 8,430 in 1920. A case of quadruplets occurred in 1917, and another in 1919.

8. *Ages of Parents.*—The relative ages of the parents of children registered in 1920 have been tabulated separately for male and female births, twins and triplets being distinguished from single births, and are shewn for single ages and for every State in "Bulletin of Population and Vital Statistics, No. 38; Commonwealth Demography, 1920 and previous years." In the present work the exigencies of space allow only the insertion of corresponding tables shewing the relative ages of parents in groups of five years. It will be seen from the tables that the largest number of single births occurred where the ages of both father and mother were between 25 and 29. The largest number of mothers was also found at ages 25 to 29.

AGES OF PARENTS IN CASES OF SINGLE BIRTHS, COMMONWEALTH, 1920.

Ages of Fathers and Sexes of Children.		Total Children.	Ages of Mothers.								
			Under 15.	15 to 19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 and upwards.	Unspecified
Under 20	Males ..	258	1	171	79	7	..	..	..	..	..
	Females	234	1	150	79	2	1	1	..	..	..
	Total ..	492	2	321	158	9	1	1	..	..	..
20 to 24	Males ..	6,276	..	1,102	4,168	910	77	15	..	..	4
	Females	6,007	..	1,125	3,911	862	96	10	3	..	..
	Total ..	12,283	..	2,227	8,079	1,772	173	25	3	..	4
25 to 29	Males ..	16,940	..	627	6,494	8,130	1,479	197	11	..	2
	Females	15,777	..	565	6,018	7,564	1,444	174	9	1	2
	Total ..	32,717	..	1,192	12,512	15,694	2,923	371	20	1	4
30 to 34	Males ..	17,498	..	157	2,681	7,238	6,273	1,043	103	..	3
	Females	16,271	..	165	2,428	6,582	6,024	990	79	2	1
	Total ..	33,769	..	322	5,109	13,820	12,297	2,033	182	2	4
35 to 39	Males ..	12,163	..	59	757	2,772	4,717	3,472	377	9	..
	Females	11,670	..	44	768	2,626	4,381	3,446	393	9	3
	Total ..	23,833	..	103	1,525	5,398	9,098	6,918	770	18	3
40 to 44	Males ..	6,863	..	16	238	772	1,917	2,620	1,264	35	1
	Females	6,681	..	11	195	802	1,898	2,553	1,187	35	..
	Total ..	13,544	..	27	433	1,574	3,815	5,173	2,451	70	1
45 to 49	Males ..	3,438	..	5	74	283	677	1,308	968	122	1
	Females	3,170	..	7	81	241	628	1,171	909	133	..
	Total ..	6,608	..	12	155	524	1,305	2,479	1,877	255	1
50 to 54	Males ..	1,247	..	2	21	91	220	392	428	92	1
	Females	1,225	..	4	18	88	233	410	389	83	..
	Total ..	2,472	..	6	39	179	453	802	817	175	1
55 to 59	Males ..	416	..	..	9	24	63	173	107	40	..
	Females	398	..	1	5	26	56	135	130	45	..
	Total ..	814	..	1	14	50	119	308	237	85	..
60 to 64	Males ..	106	..	..	5	5	20	38	34	4	..
	Females	115	..	2	3	8	27	29	39	7	..
	Total ..	221	..	2	8	13	47	67	73	11	..
65 and upwards	Males ..	44	..	..	2	8	11	13	9	1	..
	Females	51	..	..	1	3	12	17	12	6	..
	Total ..	95	..	..	3	11	23	30	21	7	..
Not stated	Males ..	8	..	..	4	..	3	..	1	..	..
	Females	6	..	..	2	..	1	..	1	..	2
	Total ..	14	..	..	6	..	4	..	2	..	2
Nuptial children	Males ..	65,257	1	2,139	14,532	20,240	15,457	9,271	3,302	303	12
	Females	61,605	1	2,074	13,509	18,804	14,801	8,936	3,151	321	8
	Total	126,862	2	4,213	28,041	39,044	30,258	18,207	6,453	624	20
Ex-nuptial children	Males ..	3,426	18	824	1,278	648	361	227	61	4	5
	Females	3,066	11	735	1,192	569	293	197	64	4	1
	Total ..	6,492	29	1,559	2,470	1,217	654	424	125	8	6
Total children	Males ..	68,683	19	2,963	15,810	20,888	15,818	9,498	3,363	307	17
	Females	64,671	12	2,809	14,701	19,373	15,094	9,133	3,215	325	9
	Total ..	133,354	31	5,772	30,511	40,261	30,912	18,631	6,578	632	26

AGES OF PARENTS OF TWINS, COMMONWEALTH, 1920.

Ages of Fathers and Sexes of Children.		Total Children.	Ages of Mothers.						
			Under 20.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 and upwards.
Under 20 ..	Females ..	4	4	..	..	..	..	..	..
	Total ..	4	4	..	..	..	..	..	..
20 to 24 ..	Males ..	106	17	65	20	4	..	..	..
	Females ..	88	11	63	12	2	..	..	..
	Total ..	194	28	129	32	6	..	..	..
25 to 29 ..	Males ..	207	4	81	165	39	7	1	..
	Females ..	330	4	91	192	37	5	1	..
	Total ..	627	8	172	357	76	12	2	..
30 to 34 ..	Males ..	452	..	41	181	182	41	7	..
	Females ..	359	..	39	148	144	25	3	..
	Total ..	811	..	80	329	326	66	10	..
35 to 39 ..	Males ..	308	..	12	72	108	106	10	..
	Females ..	309	2	14	75	84	124	10	..
	Total ..	617	2	26	147	192	230	20	..
40 to 44 ..	Males ..	194	..	2	18	52	87	35	..
	Females ..	184	..	..	10	48	93	33	..
	Total ..	378	..	2	28	100	180	68	..
45 to 49 ..	Males ..	80	..	..	2	11	43	23	1
	Females ..	98	..	..	8	11	45	31	3
	Total ..	178	..	..	10	22	88	54	4
50 to 54 ..	Males ..	31	..	..	5	2	12	12	..
	Females ..	29	..	..	3	2	14	10	..
	Total ..	60	..	..	8	4	26	22	..
55 to 59 ..	Males ..	15	..	..	..	7	5	2	1
	Females ..	9	..	..	..	1	3	4	1
	Total ..	24	..	..	..	8	8	6	2
60 and over	Males ..	2	..	..	2	..	..	..	..
	Females ..	..	..	..	..	..	..	..	..
	Total ..	2	..	..	2	..	..	..	..
Nuptial children	Males ..	1,485	21	201	465	405	301	90	2
	Females ..	1,410	21	207	448	329	309	92	4
	Total ..	2,895	42	408	913	734	610	182	6
Ex-nuptial children	Males ..	60	3	20	15	18	2	2	..
	Females ..	50	7	10	19	12	2	..	..
	Total ..	110	10	30	34	30	4	2	..
Total children	Males ..	1,545	24	221	480	423	303	92	2
	Females ..	1,460	28	217	467	341	311	92	4
	Total ..	3,005	52	438	947	764	614	184	6

AGES OF PARENTS OF TRIPLETS, COMMONWEALTH, 1920.

Ages of Fathers and Sexes of Children.		Total Children.	Ages of Mothers.				
			Under 20.	20 to 24.	25 to 29.	30 to 34.	35 to 39.
20 to 24 ..	Males ..	4	2	2	..	..	..
	Females ..	1	..	1	..	..	..
	Total ..	5	2	3	..	..	..
25 to 29 ..	Males ..	3	..	..	..	3	..
	Females ..	..	..	..	..	..	..
	Total ..	3	..	..	..	3	..
30 to 34	Males ..	10	..	..	2	8	..
	Females ..	5	..	..	1	4	..
	Total ..	15	..	..	3	12	..
35 to 39	Males ..	4	..	..	..	2	2
	Females ..	11	..	..	3	4	4
	Total ..	15	..	..	3	6	6
40 to 44	Males ..	5	..	..	3	..	2
	Females ..	1	..	..	..	..	1
	Total ..	6	..	..	3	..	3
45 to 49 ..	Males ..	2	..	..	..	2	..
	Females ..	1	..	..	..	1	..
	Total ..	3	..	..	..	3	..
Nuptial children	Males ..	28	2	2	5	15	4
	Females ..	19	..	1	4	9	5
	Total ..	47	2	3	9	24	9
Total children	Males ..	28	2	2	5	15	4
	Females ..	19	..	1	4	9	5
	Total ..	47	2	3	9	24	9

No conclusions can, of course, be drawn from one year's figures as to variations in the masculinity of the births at different ages of the parents, but so far as the figures go they indicate a few conclusions which may be mentioned, viz. :—In cases where the father is older than the mother the masculinity has a tendency to be above the average, while in cases where both parents belong to the same age group, or where the father is younger than the mother, the masculinity is rather below the average. It is also below the average in cases where the father, or both father and mother, are under 25 ; and it is above the average where the mother alone is under 25.

9. **Birthplaces of Parents.**—The relative birthplaces of the parents of children whose births were registered during the year 1920 will be found tabulated in the Bulletin before-mentioned. A summary of the results of the tabulation is here given :—

BIRTHPLACES OF PARENTS OF CHILDREN, COMMONWEALTH, 1920.

Birthplaces.	Fathers.			Mothers of Nuptial Children.			Mothers of Ex-nuptial Children.	
	Single Births.	Twins.	Trip-lets.	Single Births.	Twins.	Trip-lets.	Single Births.	Twins.
AUSTRALASIA—								
Commonwealth of Australia—								
New South Wales	40,257	442	7	42,324	487	4	2,328	22
Victoria ..	33,498	387	4	32,337	368	7	1,776	12
Queensland ..	13,110	130	2	15,139	157	2	904	9
South Australia	11,553	139	..	11,319	135	2	436	2
Western Australia	1,939	27	..	2,437	35	..	197	3
Tasmania ..	5,757	58	..	5,783	62	..	385	5
North. Territory	26	..	..	28	..	..	15	..
Federal Territory	13	..	..	8	..	..	..	..
New Zealand ..	1,185	17	..	771	14	..	47	..
EUROPE—								
England ..	11,824	150	3	11,349	119	1	255	2
Wales	334	4	..	248	6	..	7	..
Scotland.. ..	2,765	37	..	2,502	31	..	56	..
Ireland	1,508	20	..	1,031	12	..	29	..
Isle of Man ..	30	..	..	21	1	..	..	..
Other European British Possessions..	51	..	..	47	..	..	3	..
Austria-Hungary ..	84	2	..	50	1	..	..	..
Belgium ..	17	..	..	37	..	..	..	..
Denmark ..	154	1	..	36	1	..	1	..
France	49	..	..	103	2	..	1	..
Germany ..	512	8	..	178	2	..	5	..
Greece	149	3	..	71	2	..	..	..
Italy	287	2	..	162	1	..	5	..
Netherlands ..	58	..	..	26	..	..	..	..
Norway	93	3	..	22	1	..	2	..
Portugal.. ..	2	..	..	2	..	..	..	..
Russia	274	6	..	120	4	..	2	..
Spain	27	..	..	16	..	..	..	..
Sweden	133	2	..	19	1	..	1	..
Switzerland ..	34	2	..	15	..	..	..	..
Other European Countries ..	31	..	..	15	..	..	..	..
ASIA—								
British India ..	131	..	..	78	2	..	2	..
Ceylon	11	..	..	13	..	..	..	..
Hong Kong ..	..	..	..	2	..	..	..	..
Straits Settlements	12	..	..	2	..	..	..	..
Other Asiatic British Possessions ..	2	..	..	4	..	..	..	..

BIRTHPLACES OF PARENTS OF CHILDREN—*continued.*

Birthplaces.	Fathers.			Mothers of Nuptial Children.			Mothers of Ex-nuptial Children.	
	Single Births.	Twins.	Triplets.	Single Births.	Twins.	Triplets.	Single Births.	Twins.
ASIA—*continued.*								
Arabia	3	..	..	..	..	..	..	..
China	123	..	..	28	..	..	3	..
Japan	22	..	..	15	..	..	1	..
Java	8	..	..	1	..	..	..	..
Philippine Islands..	8	..	..	..	..	..	..	..
Syria	97	..	..	78	..	..	1	..
Other Asiatic Countries	12	..	..	11	..	..	..	..
AFRICA—								
Mauritius ..	11	1	..	1	..	..	..	..
S. Africa, Union of	110	..	..	92	1	..	4	..
Egypt	15	..	..	12	..	..	..	..
Other African British Possessions ..	2	..	..	..	..	..	..	..
Other African Countries	5	..	..	4	..	..	..	..
AMERICA—								
Canada	101	2	..	44	2	..	2	..
Jamaica ..	..	..	..	1	..	..	..	..
Newfoundland ..	2	..	..	2	..	..	..	..
Other American British Possessions ..	4	..	..	3	..	..	..	..
Argentine Republic	6	..	..	1	..	..	..	..
Brazil	1	..	..	3	..	..	..	..
Chile	1	..	..	1	..	..	..	..
Mexico	2	..	..	..	..	..	..	..
United States of America ..	199	3	..	105	3	..	6	..
Other American Countries ..	30	..	..	25	..	..	1	..
POLYNESIA—								
Fiji	33	1	..	17	..	..	1	..
Friendly Islands ..	2	..	..	1	..	..	..	..
Papua	2	..	..	2	..	..	..	..
Other Polynesian British Possessions	5	..	..	1	..	..	..	..
New Caledonia ..	11	1	..	18	..	..	2	..
New Hebrides ..	6	1	..	1	..	..	..	..
Samoa	4	..	..	..	..	..	..	..
Other Polynesian Islands ..	4	1	..	5	..	..	..	..
South Sea Islands (so described) ..	14	..	..	2	..	..	1	..
At Sea	89	..	..	41	..	..	6	..
Unspecified ..	20	..	..	32	..	..	7	..
Total ..	126,862	1,450	16	126,862	1,450	16	6,492	55

10. **Occupations of Fathers.**—A summary of the occupations of the fathers of all nuptial children, whose births were registered in 1920, will be found in the following table. The figures include all the States and Territories of the Commonwealth.

OCCUPATIONS OF FATHERS OF ALL NUPTIAL CHILDREN, COMMONWEALTH, 1920.

Occupations.	Number of Fathers.
CLASS I.—PROFESSIONAL.	
General Government	755
Local Government	113
Defence	,813
Law and Order	1,150
Religion	399
Charities	6
Health	1,118
Literature	140
Science	82
Civil Engineering, Architecture, and Surveying	464
Education	824
Fine Arts	142
Music	131
Amusements	501
Total Professional ..	6,638
CLASS II.—DOMESTIC.	
Hotelkeepers and Assistants ..	967
Others engaged in providing board and lodging	137
House Servants	2
Coachmen and Grooms ..	88
Hairdressers	605
Laundrymen	43
Others engaged in domestic occupations	323
Total Domestic ..	2,165
CLASS III.—COMMERCIAL.	
Banking and Finance ..	472
Insurance and Valuation ..	552
Landed and House Property ..	183
Property Rights n.e.i.	8
Books, Publications, Advertising	170
Musical Instruments	8
Prints, Pictures and Art Materials	5
Ornaments and Small Wares ..	5
Watches, Clocks, Jewellery ..	4
Surgical Instruments	1
Arms and Ammunition ..	2
Machinery	19
Carriages and Vehicles ..	28
Harness, Saddlery & Leatherware	3
Ships and Boats	9
Building Materials	18
Furniture	64
Chemicals and By-products ..	6
Paper and Stationery ..	52
Textile Fabrics	443
Dress	185
Fibrous Materials	7
Animal Food	2,319
Vegetable Food	702
Groceries, Drinks, Narcotics, and Stimulants	1,329
Living Animals	193
Leather, Raw Materials ..	45
Wool and Tallow	.37
Hay, Corn, &c.	185
Other Vegetable Matter, n.e.i. ..	104
	142
CLASS III.—COMMERCIAL—contd.	
Stone, Clay and Glass ..	28
Ironmongery	150
Merchants, Importers ..	499
Shopkeepers and Assistants ..	1,177
Dealers and Hawkers ..	363
Agents and Brokers	568
Clerks, Bookkeepers, &c. ..	4,779
Commercial Travellers, Salesmen	1,800
Others engaged in Commercial Pursuits	1,438
Speculators on Chance Events ..	68
Storage	7
Total Commercial ..	18,208
CLASS IV.—TRANSPORT AND COMMUNICATION.	
Aviation	6
Railway Traffic	5,069
Tramway Traffic	1,329
Road Traffic	5,837
Sea and River Traffic ..	1,766
Postal Service	637
Telegraph and Telephone Service	626
Messengers, &c.	15
Total Transport & Communication	15,285
CLASS V.—INDUSTRIAL.	
Books and Publications ..	817
Musical Instruments	56
Prints, Pictures and Art Materials	72
Ornaments and Small Wares ..	155
Equipment for Sports and Games	4
Medals, Type, and Dies ..	43
Watches, Clocks, and Scientific Instruments	136
Surgical Instruments	12
Arms and Ammunition ..	52
Engines, Machines, Tools, and Implements	1,625
Carriages and Vehicles ..	1,415
Harness, Saddlery & Leatherware	395
Ships, Boats, &c.	173
Furniture	829
Building Materials	841
Chemicals and By-products ..	64
Textile Fabrics	256
Dress	1,988
Fibrous Materials	52
Animal Food	383
Vegetable Food	1,603
Groceries, Drinks, Narcotics, and Stimulants	352
Animal Matter not elsewhere clsd.	428
Workers in Wood not elsewhere clsd	238
Vegetable Produce for Fodder ..	9
Paper	15
Stone, Clay, Glass, &c. ..	655
Jewellery and Precious Stones ..	240
Metals, other than Gold & Silver	3,338
Gas, Electric Lighting, &c. ..	1,103

OCCUPATIONS OF FATHERS OF ALL NUPTIAL CHILDREN—*continued*.

Occupations.	Number of Fathers.	Occupations.	Number of Fathers.
CLASS V.—INDUSTRIAL—*contd.*		CLASS VI.—AGRICULTURAL, PASTORAL, MINING, ETC.	
Building—			
Builders	567	Agricultural	21,006
Stonemasons	212	Pastoral	4,044
Bricklayers	631	Dairy Farming	1,071
Carpenters	3,080	Bees, Fisheries, and Wild Animals	481
Slaters	71	Forestry	825
Plasterers	359	Water Conservation and Supply	128
Painters	1,226	Mines and Quarries	4,189
Plumbers	871	Total Primary Producers	31,744
Signwriters	64		
Others	31	CLASS VII.—INDEFINITE.	
Roads, Railways, Earthworks ..	205	Independent Means, having no specific occupation	88
Disposal of the Dead	34	Occupation not stated ..	59
Disposal of Refuse	119	Total Indefinite ..	147
Other Industrial Workers—			
Manufacturers, etc. ..	655	CLASS VIII.—DEPENDENTS.	
Engineers, Firemen ..	3,420	Dependent Relatives	44
Contractors	1,229	Dependent on State	11
Labourers, undefined ..	23,554	Total Dependents ..	55
Others	409		
Total Industrial ..	54,086	Total all Occupations ..	128,328

11. ***Mother's Age, Duration of Marriage, and Issue.***—A tabulation has been made shewing, in age-groups, the duration of marriage and issue of mothers. The total number of nuptial confinements in 1920 was 128,328, viz., 126,862 single births, 1,450 cases of twins, and 16 cases of triplets. Account has been taken in the number of births of only 2,895 twins and 47 triplets, 6 cases of stillbirths having been excluded. From this number 97 mothers must be deducted, in whose cases the necessary particulars either as to date of marriage or as to previous issue were not stated. The tables refer, therefore, to a total of 128,231 mothers. They exclude children by former marriages and still-born children, but include ex-nuptial children, previous issue by the same father. The tables cannot be given *in extenso*, but the following are their most salient features. The complete tabulations are shewn in "Commonwealth Bulletin of Population and Vital Statistics, No. 38; Commonwealth Demography, 1920, and previous years."

DURATION OF MARRIAGE AND ISSUE OF MOTHERS OF ALL AGES, COMMONWEALTH, 1920.

Duration of Marriage.	Total Mothers.	Total Issue.	Average Number of Children.	Duration of Marriage.	Total Mothers.	Total Issue.	Average Number of Children.
Years.				Years.			
0–1 ..	21,551	21,825	1.01	18–19 ..	1,459	10,818	7.41
1–2 ..	11.104	12,119	1.09	19–20 ..	1,131	8,790	7.77
2–3 ..	8,713	14,846	1.70	20–21 ..	1,084	8,969	8.27
3–4 ..	9,536	18,838	1.98	21–22 ..	694	5,902	8.50
4–5 ..	9,522	21,629	2.27	22–23 ..	520	4,638	8.92
5–6 ..	9,518	25,244	2.65	23–24 ..	382	3,492	9.14
6–7 ..	8,315	25,626	3.08	24–25 ..	277	2,684	9.69
7–8 ..	7,243	24,952	3.44	25–26 ..	180	1,762	9.79
8–9 ..	6,674	25,529	3.83	26–27 ..	98	1,021	10.42
9–10 ..	5,810	24,176	4.16	27–28 ..	60	619	10.32
10–11 ..	4,921	22,369	4.55	28–29 ..	43	466	10.84
11–12 ..	3,980	19,618	4.93	29–30 ..	22	226	10.27
12–13 ..	3,600	19,047	5.29	30–31 ..	10	114	11.40
13–14 ..	3,215	18,047	5.61	31–32 ..	2	16	8.00
14–15 ..	2,754	16,562	6.01	32–33 ..	1	9	9.00
15–16 ..	2,268	14,301	6.31	35–36 ..	1	14	14.00
16–17 ..	1,975	13,198	6.68				
17–18 ..	1,568	11,010	7.02	Total ..	128,231	398,475	3.11

AGES AND ISSUE OF MOTHERS, COMMONWEALTH, 1920.

Ages of Mothers.	Total Mothers.	Total Issue.	Average Number of Children.	Ages of Mothers.	Total Mothers.	Total Issue.	Average Number of Children.
Under 20 years	4,234	4,975	1.18	40–44 years ..	6,539	42,273	6.46
20–24 years ..	28,228	46,754	1.66	45 yrs. and over	627	4,814	7.68
25–29 „ ..	39,481	98,218	2.49				
30–34 „ ..	30,617	109,707	3.58				
35–39 „ ..	18,505	91,734	4.96	All ages ..	128,231	398,475	3.11

PREVIOUS ISSUE OF MOTHERS OF VARIOUS AGES, COMMONWEALTH, 1920.

Previous Issue.	Mothers' Ages.							
	Under 20 Years.	20–24 Years.	25–29 Years.	30–34 Years.	35–39 Years.	40–44 Years.	45 Years and Over.	Total.
0	3,580	16,068	12,869	5,107	1,679	351	24	39,678
1	595	7,666	10,032	5,589	1,914	388	31	26,215
2	53	3,161	7,617	5,934	2,517	540	29	19,851
3	6	1,062	4,972	4,839	2,607	653	39	14,178
4	..	219	2,537	3,752	2,577	727	50	9,862
5	..	45	980	2,636	2,202	773	54	6,690
6	..	5	329	1,513	1,834	668	54	4,403
7	..	1	109	752	1,347	638	80	2,927
8	..	1	25	336	837	648	65	1,912
9	..	..	7	103	541	472	71	1,194
10	..	..	2	41	250	289	44	626
11	..	..	1	7	117	206	39	370
12	..	..	1	5	52	104	31	193
13	..	..	..	2	18	40	5	65
14	..	..	..	1	11	27	7	46
15	..	..	..	..	..	9	3	12
16	..	..	..	..	1	3	1	5
17	..	..	..	..	..	2	..	2
18	..	..	..	..	1	1	..	2
Total Mothers	4,234	28,228	39,481	30,617	18,505	6,539	627	128,231

The tables shew a fairly regular increase in the number of children up to the period where the marriage has lasted twenty years, and it appears that the average interval between successive confinements up to that period was rather more than two years and eight months. The average number of children of all marriages was 3.11, the corresponding figures for 1919 having been 3.33; for 1918, 3.34; for 1917, 3.29; for 1916, 3.29; for 1915, 3.26; and for 1914, 3.22.

A similar table has been prepared shewing the previous issue of mothers of twins and triplets, from which it appears that 362 mothers had twins at their first confinement; 255 at their second; 225 at their third; 186 at their fourth; 141 at their fifth; 98 at

their sixth; 70 at their seventh; 35 at their eighth; 35 at their ninth; 16 at their tenth; 11 at their eleventh; 9 at their twelfth; 3 at their thirteenth; 2 at their fourteenth; and 2 at their fifteenth.

Of the 16 cases of triplets, 2 occurred at the first confinement; 3 at the second; 5 at the third; 2 at the fourth; 2 at the fifth; and 2 at the sixth.

12. **Interval between Marriage and First Birth.**—The following table shews the interval between marriage and first birth. Twins and triplets are included, the eldest born only being enumerated:—

INTERVAL BETWEEN MARRIAGE AND FIRST BIRTH, COMMONWEALTH, 1929.

Interval.	Number of First Children.	Interval.	Number of First Children.
Under 1 month	424	2 years	2,930
1 month	564	3 "	1,706
2 months	745	4 "	1,496
3 "	999	5 "	756
4 "	1,346	6 "	328
5 "	1,652	7 "	229
6 "	2,153	8 "	159
7 "	2,123	9 "	97
8 "	1,855	10 "	61
9 "	3,821	11 "	42
10 "	3,442	12 "	42
11 "	2,388	13 "	23
12 "	1,908	14 "	21
13 "	1,606	15 "	13
14 "	1,288	16 "	9
15 "	1,141	17 "	2
16 "	910	18 "	6
17 "	775	19 "	2
18 "	639	20 "	3
19 "	577	21 "	2
20 "	455	22 "	2
21 "	400	23 "	1
22 "	320	24 "	1
23 "	215	27 "	1
		Total	39,678

Of these 39,678 children, 20,398 were males and 19,280 were females; the masculinity of first births was therefore 2.82 as compared with 3.01 for total births.

The previous issue of mothers of ex-nuptial children is not recorded, but for the purposes of the following table all ex-nuptial births have been assumed to be first births. The table shows the ages of mothers of ex-nuptial births, of nuptial births occurring less than nine months after marriage, and of nuptial births occurring nine months or more after marriage. A comparison of the combined total of the first two columns with the total of nuptial children born nine months or more after marriage reveals the fact that for all ages the ratio of the two was about as 2 is to 3. At all ages up to and including 21, however, there was a great preponderance of ex-nuptial births and of births following on ante-nuptial conception. It must, of course, be understood that a certain number of premature births are necessarily included among the births which occurred less than nine months after marriage, but there is no means of arriving at the proportion of those births.

AGES OF MOTHERS AND INTERVAL BETWEEN MARRIAGE AND FIRST BIRTH, ETC., COMMONWEALTH, 1920.

Age of Mother at Birth of Child.	Ex-nuptial Births.	Nuptial Births less than nine months after Marriage.	Total of two preceding columns.	Nuptial Births nine months after Marriage and later.	Total Nuptial First Births.	Nuptial First Births and Ex-nuptial Births.
13 years ..	5	..	5	..	..	5
14 „ ..	24	2	26	..	2	28
15 „ ..	44	21	65	2	23	88
16 „ ..	174	110	284	20	130	414
17 „ ..	298	356	654	89	445	1,099
18 „ ..	461	783	1,244	321	1,104	2,348
19 „ ..	587	1,158	1,745	718	1,876	3,621
20 „ ..	599	1,332	1,931	1,184	2,516	4,447
21 „ ..	540	1,417	1,957	1,664	3,081	5,038
22 „ ..	503	1,312	1,815	2,185	3,497	5,312
23 „ ..	464	1,093	1,557	2,457	3,550	5,107
24 „ ..	379	914	1,293	2,510	3,424	4,717
25 „ ..	301	678	979	2,511	3,189	4,168
26 „ ..	306	648	954	2,377	3,025	3,979
27 „ ..	228	464	692	2,104	2,568	3,260
28 „ ..	227	353	580	1,830	2,183	2,763
29 „ ..	172	292	464	1,612	1,904	2,368
30 „ ..	168	208	376	1,350	1,558	1,934
31 „ ..	129	132	261	991	1,123	1,384
32 „ ..	128	154	282	862	1,016	1,298
33 „ ..	124	102	226	634	736	962
34 „ ..	120	89	209	585	674	883
35 „ ..	128	58	186	477	535	721
36 „ ..	102	53	155	390	443	598
37 „ ..	75	36	111	252	288	399
38 „ ..	71	27	98	222	249	347
39 „ ..	50	15	65	149	164	229
40 „ ..	48	24	72	114	138	210
41 „ ..	17	15	32	86	101	133
42 „ ..	26	6	32	55	61	93
43 „ ..	22	4	26	37	41	67
44 „ ..	13	1	14	9	10	24
45 „ ..	4	3	7	10	13	20
46 „ ..	1	..	1	7	7	8
47 „ ..	2	1	3	1	2	5
48 „ ..	..	..	..	2	2	2
50 „ ..	1	..	1	..	..	1
Not stated ..	6	..	6	..	..	6
Total ..	6,547	11,861	18,408	27,817	39,678	58,086

13. Interval between Birth and Registration of Birth.—Information was obtained during 1920 as to the period elapsing between birth and registration. The law relating to maternity allowances has tended to accelerate the registration of births; and during the year under review it was found that approximately 36 per cent. were registered in the first week.

INTERVAL BETWEEN BIRTH AND REGISTRATION, COMMONWEALTH, 1920.

Interval.	Nuptial Births.	Ex-nuptial Births.	Total Births.	Interval.	Nuptial Births.	Ex-nuptial Births.	Total Births.
Under 1 day	1,535	107	1,642	39 days ..	592	22	614
1 day ..	5,797	540	6,337	40 ,, ..	574	25	599
2 days ..	7,681	694	8,375	41 ,, ..	607	26	633
3 ,, ..	8,321	469	8,790	42 ,, ..	484	22	506
4 ,, ..	7,967	351	8,318	43 ,, ..	386	17	403
5 ,, ..	7,566	238	7,804	44 ,, ..	373	18	391
6 ,, ..	7,204	222	7,426	45 ,, ..	331	14	345
7 ,, ..	6,547	173	6,720	46 ,, ..	336	24	360
8 ,, ..	5,568	136	5,704	47 ,, ..	276	10	286
9 ,, ..	5,232	150	5,382	48 ,, ..	243	9	252
10 ,, ..	4,909	206	5,115	49 ,, ..	207	15	222
11 ,, ..	4,774	254	5,028	50 ,, ..	243	15	258
12 ,, ..	4,633	259	4,892	51 ,, ..	216	10	226
13 ,, ..	4,636	275	4,911	52 ,, ..	239	14	253
14 ,, ..	3,943	238	4,181	53 ,, ..	200	13	213
15 ,, ..	3,336	190	3,526	54 ,, ..	214	12	226
16 ,, ..	2,972	160	3,132	55 ,, ..	221	7	228
17 ,, ..	2,727	185	2,912	56 ,, ..	184	16	200
18 ,, ..	2,626	152	2,778	57 ,, ..	180	8	188
19 ,, ..	2,319	135	2,454	58 ,, ..	222	15	237
20 ,, ..	2,177	136	2,313	59 ,, ..	184	10	194
21 ,, ..	2,073	125	2,198	60 ,, ..	148	14	162
22 ,, ..	1,853	100	1,953	61 to 69 days	315	27	342
23 ,, ..	1,612	97	1,709	70 ,, 79 ,,	158	7	165
24 ,, ..	1,506	72	1,578	80 ,, 89 ,,	99	12	111
25 ,, ..	1,397	58	1,455	90 ,, 99 ,,	35	5	40
26 ,, ..	1,259	47	1,306	100 ,, 109 ,,	21	1	22
27 ,, ..	1,230	50	1,280	110 ,, 119 ,,	15	5	20
28 ,, ..	1,121	43	1,164	120 ,, 129 ,,	15	3	18
29 ,, ..	1,052	50	1,102	130 ,, 139 ,,	15	1	16
30 ,, ..	962	40	1,002	140 ,, 149 ,,	5	2	7
31 ,, ..	897	35	932	150 ,, 159 ,,	5	..	5
32 ,, ..	857	40	897	160 ,, 169 ,,	10	1	11
33 ,, ..	808	33	841	170 ,, 179 ,,	4	3	7
34 ,, ..	714	30	744	180 ,, 365 ,,	28	8	36
35 ,, ..	695	21	716	1 to 2 years	2	..	2
36 ,, ..	675	28	703	2 years and over	2	..	2
37 ,, ..	603	23	626				
38 ,, ..	631	29	660	Total Births	129,804	6,602	136,406

The weighted average interval between the dates of birth and registration has been found to be about 13 days both for nuptial and ex-nuptial children since the granting of the maternity allowance.

2. Marriages.

1. Marriages, 1914 to 1920.—The number of marriages registered in the Commonwealth in 1920 was 51,552, the highest number ever recorded. In 1914 the number of marriages and the marriage rate increased in all the States with the exception of South Australia and Tasmania, and in 1915 there were further increases

both in the actual number of marriages and in the marriage rate in all States, with the *exception of South Australia and Western Australia. A considerable decrease, however, took place in 1916, and a still further fall in 1917 and 1918, the actual number of marriages in the latter years being about the same as in 1909. In 1919 and 1920 there was a substantial recovery.* The number of marriages in each State since 1914 is shewn below :—

TOTAL MARRIAGES, COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	Common-wealth
1914 ..	17,357	11,829	5,894	4,010	2,660	1,543	17	1	43,311
1915 ..	18,095	12,832	6,135	3,965	2,581	1,600	12	4	45,224
1916 ..	16,316	11,342	5,208	3,602	2,365	1,433	19	4	40,289
1917 ..	13,246	9,505	4,868	3,252	1,621	1,138	34	2	33,666
1918 ..	13,194	9,156	4,815	3,190	1,612	1,131	39	4	33,141
1919 ..	15,809	11,706	5,429	3,855	2,194	1,513	25	9	40,540
1920 ..	20,154	14,808	6,667	4,881	2,932	1,999	17	4	51,552

2. **Marriage Rates, 1914 to 1920.**—The number of marriages registered per thousand of mean population is shewn in the following table for the same period :—

CRUDE MARRIAGE RATE (a), COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	Common-wealth.
1914 ..	9.37	8.31	8.73	9.11	8.22	7.78	4.53	0.38	8.80
1915 ..	9.68	9.00	8.93	9.01	8.01	8.03	2.73	1.62	9.14
1916 ..	8.74	8.05	7.69	8.32	7.51	7.23	3.92	1.53	8.21
1917 ..	7.09	6.76	7.16	7.52	5.25	5.72	6.86	0.80	6.87
1918 ..	6.90	6.46	6.99	7.25	5.18	5.55	7.81	1.65	6.65
1919 ..	8.04	7.98	7.62	8.46	6.78	7.16	5.20	3.89	7.88
1920 ...	9.93	9.90	9.08	10.33	8.78	9.18	3.88	1.84	9.73

(a) Number of marriages (not persons married) per 1,000 of mean annual population.

As in some international tabulations the marriage rates are calculated per 1,000 of the unmarried population of 15 years and over, the corresponding rates have been worked out for the Commonwealth for the four last Census periods. The figures comprise in each case the Census year with the year immediately preceding and the year immediately following, and are as follows :—Years 1880–82, 48.98 ; years 1890–92, 45.74 ; years 1900–02, 42.14 ; years 1910–12, 50.10. These rates refer, of course, to persons married and not to marriages, as is the case in the preceding table.

3. **Marriage Rates in Various Countries.**—A comparison of the Australian marriage rate with that of European countries shews that until 1915 it was once or twice surpassed by the rate for Ontario, and equalled by the rate of some of the countries of the East of Europe, and that it was higher than the rate of the countries of Central and Western Europe, and especially than the rate of countries of the North of Europe. Although England and Wales experienced a marriage rate of 10.1 during 1920, the Commonwealth with a rate of 9.7 occupied a very favourable position in the list of countries for which recent information is available.

CRUDE MARRIAGE RATES, VARIOUS COUNTRIES.

Country.	Year.	Crude Marriage Rate.	Country.	Year.	Crude Marriage Rate.
Serbia	1911	10.3	Spain	1919	8.1
South Australia ..	1920	10.3	Belgium	1912	8.0
England and Wales ..	*1920*	*10.1*	Prussia	*1912*	8.0
New South Wales ..	1920	9.9	Russia (European) ..	1909	7.9
Victoria	1920	9.9	Japan	1916	7.8
United Kingdom ..	1919	9.9	Germany	1913	7.7
Australia	**1920**	**9.7**	Norway	1918	7.5
Scotland	1920	9.6	Quebec (Canada) ..	1917	7.5
Bulgaria	1911	9.4	France	1913	7.5
Ontario (Canada) ..	*1919*	9.3	Austria	*1912*	7.4
Tasmania	1920	9.2	Sweden	1918	6.7
Queensland	1920	9.1	Switzerland ..	1918	6.7
Western Australia ..	1919	8.8	Ireland	1919	6.1
Hungary	1912	8.6	Finland	1917	6.0
Rumania	1914	8.5	Chile	1914	5.2
Netherlands	1919	8.5	Ceylon	1919	4.3
New Zealand ..	*1919*	8.4	Jamaica	*1917*	3.3
Denmark	1919	8.3	Italy	1917	2.7
South Africa, Union of	1918	8.2			

4. **Age at Marriage.**—(*a*) The age at marriage of bridegrooms and brides will be found in the following table, the previous conjugal condition of the contracting parties being distinguished. It will be seen that no less than 1,818 males who were less than twenty-one years of age were married during 1920. The corresponding number of females was 9,040. At the other extreme there were 30 men of sixty-five years and upwards, who described themselves as bachelors, and 9 spinsters of corresponding age.

AGES AND CONJUGAL CONDITION OF PERSONS MARRIED, COMMONWEALTH, 1920.

Age at Marriage.	Bridegrooms.				Brides.			
	Bachelors.	Widowers.	Divorced.	Total.	Spinsters.	Widows.	Divorced.	Total.
14 years ..	..	..	..	..	10	..	..	10
15 „ ..	..	..	..	..	59	..	..	59
16 „ ..	3	..	..	3	298	..	..	298
17 „ ..	43	..	..	43	874	..	..	874
18 „ ..	208	..	..	208	1,854	3	..	1,857
19 „ ..	543	..	1	544	2,773	1	..	2,774
20 „ ..	1,019	1	..	1,020	3,155	11	2	3,168
21 „ ..	2,623	2	1	2,626	5,274	18	1	5,293
22 „ ..	3,028	1	3	3,032	4,490	32	2	4,524
23 „ ..	3,449	10	4	3,463	4,251	53	14	4,318
24 „ ..	3,916	21	4	3,941	4,219	67	14	4,300
25 „ ..	4,208	17	6	4,231	3,659	92	18	3,769
26 „ ..	4,056	32	11	4,099	3,202	89	25	3.316
27 „ ..	3,694	34	12	3,740	2,703	121	27	2,851
28 „ ..	3,558	50	26	3,634	2,291	137	27	2,455

AGES AND CONJUGAL CONDITION OF PERSONS MARRIED, COMMONWEALTH, 1920—*continued.*

Age at Marriage.	Bridegrooms.				Brides.			
	Bachelors.	Widowers.	Divorced.	Total.	Spinsters.	Widows.	Divorced.	Total.
29 years ..	2,956	65	20	3,041	1,735	141	29	1,905
30 ,, ..	2,443	88	17	2,548	1,375	138	32	1,545
31 ,, ..	1,977	93	21	2,091	997	105	26	1,128
32 ,, ..	1,785	92	19	1,896	847	127	31	1,005
33 ,, ..	1,382	120	21	1,523	662	113	29	804
34 ,, ..	1,096	104	25	1,225	613	105	38	756
35 ,, ..	979	109	23	1,111	450	122	18	590
36 ,, ..	800	116	19	935	396	110	23	529
37 ,, ..	589	85	22	696	304	94	13	411
38 ,, ..	608	128	37	773	265	100	15	380
39 ,, ..	507	102	16	625	220	108	19	347
40 ,, ..	416	109	27	552	214	91	22	327
41 ,, ..	282	70	13	365	130	63	13	206
42 ,, ..	303	91	13	407	115	76	8	199
43 ,, ..	193	65	18	276	115	72	6	193
44 ,, ..	197	68	12	277	88	66	15	169
45 ,, ..	187	85	10	282	69	92	3	164
46 ,, ..	144	84	6	234	53	59	10	122
47 ,, ..	117	79	6	202	60	47	6	113
48 ,, ..	126	82	7	215	41	57	4	102
49 ,, ..	101	55	12	168	48	60	4	112
50 ,, ..	82	93	7	182	28	41	4	73
51 ,, ..	58	46	3	107	10	29	1	40
52 ,, ..	45	73	7	125	19	32	4	55
53 ,, ..	46	63	4	113	11	29	2	42
54 ,, ..	45	65	3	113	21	27	2	50
55 ,, ..	36	71	6	113	5	32	1	38
56 ,, ..	31	57	3	91	9	22	1	32
57 ,, ..	20	49	2	71	8	22	2	32
58 ,, ..	19	65	2	86	7	26	1	34
59 ,, ..	20	34	2	56	10	14	1	25
60 ,, ..	16	41	..	57	4	22	1	27
61 ,, ..	8	32	1	41	2	11	..	13
62 ,, ..	5	48	..	53	3	13	..	16
63 ,, ..	6	37	..	43	4	11	..	15
64 ,, ..	5	34	..	39	2	13	..	15
65 ,, ..	8	26	1	35	2	9	1	12
66 ,, ..	3	24	..	27	1	13	..	14
67 ,, ..	3	20	..	23	1	5	..	6
68 ,, ..	2	18	2	22	2	11	..	13
69 ,, ..	3	18	..	21	1	3	..	4
70 ,, ..	4	23	..	27	..	3	..	3
71 ,, ..	..	6	..	6	..	..	..	..
72 ,, ..	3	16	..	19	..	2	1	3
73 ,, ..	..	13	..	13	..	..	..	..
74 ,, ..	..	5	..	5	..	2	..	2
75 ,, ..	1	9	..	10	..	3	..	3
76 ,, ..	..	4	1	5	..	2	..	2
77 ,, ..	..	3	..	3	1	..	..	1
78 ,, ..	..	..	..	..	..	1	..	1
79 ,, ..	1	4	..	5	1	..	..	1
80 ,, ..	..	5	..	5	..	..	..	..
81 ,, ..	..	3	..	3	..	..	..	..
82 ,, ..	1	..	..	1	..	..	..	..
83 ,, ..	..	2	..	2	..	..	..	..
87 ,, ..	1	..	..	1	..	..	..	..
Not stated	3	..	..	3	5	1	1	7
Total	48,011	3,065	476	51,552	48,066	2,969	517	51,552

(*b*) The relative ages of bridegrooms and brides are shewn for single years in "*Bulletin of Population and Vital Statistics, No. 38*"; a condensation into age-groups of five years is here given :—

RELATIVE AGES OF PERSONS MARRIED, COMMONWEALTH, 1920.

Ages.		Total Bridegrooms.	Ages of Brides.								
			Under 15.	15 to 19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 and upwards.	Not stated.
Ages of Bridegrooms.	Under 20 ..	798	3	534	243	16	1	1	..	..	..
	20 to 24 ..	14,082	2	3,222	8,774	1,844	180	41	9	1	..
	25 to 29 ..	18,745	5	1,561	8,771	6,078	1,182	197	36	13	2
	30 to 34 ..	9,283	..	391	2,752	3,558	1,966	480	108	20	2
	35 to 39 ..	4,140	..	110	715	1,272	1,095	607	184	67	..
	40 to 44 ..	1,877	..	81	226	420	466	367	259	107	1
	45 to 49 ..	1,101	..	8	87	128	199	270	194	215	..
	50 to 54 ..	640	..	2	10	46	89	102	105	219	..
	55 to 59 ..	417	..	2	12	22	38	70	71	202	..
	60 to 64 ..	233	..	..	3	6	7	20	89	158	..
	65 and upwards ..	233	..	..	1	6	6	13	29	178	..
	Not stated ..	3	..	1	..	..	..	..	..	..	2
Total Brides ..		51,552	10	5,862	21,603	14,296	5,238	2,257	1,094	1,185	7

5. **Previous Conjugal Condition.**—In a previous table the total number of bachelors and spinsters, widowed and divorced persons, who were married during the year 1920, was shewn. In the following table the relative conjugal condition of the contracting parties is given :—

RELATIVE CONJUGAL CONDITION OF PERSONS MARRIED, COMMONWEALTH, 1920.

Conjugal Condition.		Total Bridegrooms.	Brides.		
			Spinsters.	Widows.	Divorced.
Bridegrooms	Bachelors ..	48,011	45,617	1,999	395
	Widowers ..	3,065	2,075	903	87
	Divorced ..	476	374	67	35
Total Brides ..		51,552	48,066	2,969	517

6. **Birthplaces of Persons Married.**—Information as to the birthplaces of persons who were married in 1920 was not obtained in the State of Western Australia; the following figures refer, therefore, only to New South Wales, Victoria, Queensland, South Australia, Tasmania, the Northern Territory and Federal Territory. As might

be expected, there were more brides than bridegrooms who were natives of the Commonwealth. In "Bulletin No. 38, Commonwealth Demography," the relative birthplaces of bridegrooms and brides will be found tabulated.

BIRTHPLACES OF PERSONS MARRIED, COMMONWEALTH (a), 1920.

Birthplaces.	Bridegrooms.	Brides.
AUSTRALASIA—		
New South Wales ..	15,665	17,062
Victoria	13,689	13,895
Queensland ..	5,148	5,687
South Australia ..	4,530	4,507
Western Australia ..	158	206
Tasmania	2,256	2,290
Northern Territory ..	6	12
Federal Territory ..	3	4
New Zealand ..	442	269
EUROPE—		
England	4,109	3,065
Wales	119	51
Scotland	944	795
Ireland	511	311
Isle of Man ..	10	3
Other European British Possessions	35	19
Austria-Hungary ..	15	6
Belgium	7	7
Denmark	61	12
France	22	39
Germany	108	49
Greece	63	15
Italy	71	24
Netherlands ..	26	5
Norway	37	3
Portugal	1	..
Russia	83	27
Spain	11	7
Sweden	45	3
Switzerland ..	14	6
Other European Countries ..	25	6
ASIA—		
British India ..	49	30
Ceylon	3	..
Hong Kong ..	..	1
Straits Settlements	..	1
Other Asiatic British Possessions ..	..	1
Arabia	1	..
ASIA—*continued.*		
China	29	6
Japan	7	2
Philippine Islands ..	2	..
Syria	16	10
Other Asiatic Countries ..	6	..
AFRICA—		
Union of South Africa	53	48
Mauritius	5	..
Egypt	2	1
Other African Countries	2	..
AMERICA—		
Canada	47	21
Newfoundland ..	1	..
Other American British Possessions ..	2	
Argentine Republic ..	2	..
Brazil	1	..
Chile	2	2
Mexico	..	1
United States ..	116	41
Other American Countries ..	6	5
POLYNESIA—		
Fiji	13	7
Papua	1	1
New Caledonia ..	13	18
New Hebrides ..	..	2
Samoa	1	..
Other Polynesian Islands	1	1
South Sea Islands (so described) ..	5	..
At sea	12	18
Not stated	8	17
Total ..	48,620	48,620

(a) Exclusive of Western Australia.

7. Occupations and Ages of Bridegrooms.—A tabulation has been made of the occupations and ages of all males married in the Commonwealth in the years 1914 to 1920. In "Bulletin No. 38" the 1920 tabulation is shewn for orders of occupations; here it is repeated for classes only, with a subdivision of the Industrial class and of the class of Primary Producers. The average ages of the persons falling under those twelve subdivisions were determined, and it appears that, apart from the Indefinite class, which consists chiefly of persons who have retired from business and who are living on their own means, and where a high average age may naturally be expected, the average age ranges from 28.33 in the Manufacturing class to 32.19 years in the Pastoral class. The results obtained are shewn in the following table:—

OCCUPATIONS AND AGES OF BRIDEGROOMS, COMMONWEALTH, 1920.

Ages at Marriage.	Professional.	Domestic.	Mercantile.	Transport and Communication.	Industrial. Manufacturing.	Industrial. Building and Construction.	Industrial. Indefinite Industrial Workers.	Primary Producers. Agricultural.	Primary Producers. Pastoral.	Primary Producers. Miners and Quarries.	Primary Producers. Other Primary Producers.	Indefinite.
16 years	..	..	..	..	1	..	2	..	..	..	..	..
17 ,,	1	..	1	5	11	..	16	5	1	9	..	..
18 ,,	5	6	34	35	33	8	61	14	4	5	2	1
19 ,,	18	6	76	84	112	17	109	30	9	15	8	..
20 ,,	40	11	121	128	209	47	303	97	16	31	10	7
21 ,,	100	59	333	348	530	152	704	241	41	84	18	11
22 ,,	140	57	496	357	600	181	709	328	57	64	29	5
23 ,,	196	44	557	388	653	241	732	481	67	71	22	11
24 ,,	213	74	713	419	718	265	862	464	87	90	27	9
25 ,,	290	64	803	473	679	246	821	614	117	89	23	12
26 ,,	253	57	782	451	656	235	798	617	116	95	34	5
27 ,,	266	62	722	425	500	213	719	541	123	64	29	7
28 ,,	259	66	661	361	528	189	738	629	118	59	20	6
29 ,,	221	56	578	308	434	152	592	501	132	51	16	6
30 ,,	180	48	493	249	333	133	456	471	104	55	21	5
31 ,,	152	32	425	213	294	102	362	380	81	31	16	3
32 ,,	143	36	345	198	249	109	340	335	78	40	18	5
33 ,,	112	26	284	158	208	76	286	271	74	17	10	1
34 ,,	81	27	229	120	152	84	219	217	57	27	12	..
35 to 39 years	324	90	701	384	489	221	811	771	194	108	43	4
40 ,, 44 ,,	143	43	331	159	193	87	359	355	123	63	13	8
45 ,, 49 ,,	97	34	195	83	134	47	195	178	62	47	12	17
50 years and upwards	114	52	255	120	164	100	267	253	88	54	7	49
Not stated	..	..	1	..	1	..	..	1	..	..	..	..
Total	3,357	950	9,131	5,466	7,950	2,905	10,526	7,794	1,749	1,163	390	171
Average age—year 1920	30.59	31.01	29.72	28.73	28.33	29.38	28.91	30.58	32.19	30.45	29.60	38.06

The age at marriage of brides has remained fairly stationary during the period at an average of about 26 years. The figures for the seven years are :—1914, 25.78 years; 1915, 25.75 years; 1916, 26.07 years; 1917, 26.22 years; 1918, 26.11 years; 1919, 25.77 years; and 26.11 years in 1920. For the five years 1907–11 the average age was 25.70 years, compared with 25.92 years for the five years 1912–16, and 26.11 years for 1920. As the average age of all bridegrooms during 1920 was 28.55 years, it follows that brides are generally speaking rather less than three years and one-half younger than bridegrooms.

8. **Fertility of Marriages.**—The quotient obtained by division of the nuptial births registered, say during the five years 1916 to 1920, by the number of marriages registered during the five years 1911 to 1915, *i.e.*, the period antecedent by five years to the period of the births, has been called the "fertility of marriages." This works out at 3.05, or *in other words, the number of children to be expected from every marriage in the Commonwealth* is about three. This method, while not professing any claim to accuracy, generally furnishes results which agree fairly well with those found by more elaborate and careful investigation. For the period 1907–11 the result was 3.43; for the year 1914, 3.87; for the year 1915, 3.50; for the year 1916, 3.17; for the year 1917, 2.93; for the year 1918, 3.02; for the year 1919, 2.86; and for the year 1920, 3.05.

9. **Registration of Marriages.**—In all the States of the Commonwealth marriages may be celebrated either by ministers of religion whose names are registered for that purpose with the Registrar-General, or by certain civil officers—in most cases district registrars. The great majority of marriages in every State are celebrated by ministers of religion. The proportions so celebrated in 1920 were: New South Wales, 95.34 per cent.; Victoria, 96.99 per cent.; Queensland, 97.34 per cent.; South Australia, 95.90 per cent.; Western Australia, 87.04 per cent.; and Tasmania, 97.95 per cent., the percentage for the Commonwealth being 95.74. The registered ministers in 1920 belonged to more than forty different denominations, some of which, however, can hardly be regarded as having any valid existence. A number of these have been omitted from the tabulation, and are bracketed under the heading "Other Christians." The figures for 1920 are shown in the following table :—

MARRIAGES IN EACH DENOMINATION, COMMONWEALTH, 1920.

Denomination.			Qld.	S.A.	W.A.	Tas.	N. Ter.	Fed. Ter.	Com'-wealth.
Church of England ..	9,056	4,421	2,030	1,329	1,176	840	4	3	18,859
Roman Catholic Church ..	3,818	2,596	1,433	563	442	284	4	1	9,141
Presbyterian Church of Australia	2,618	2,872	906	251	276	172	2	..	7,097
Methodist Church ..	2,471	2,064	1,091	1,416	420	330	4	..	7,796
Congregational Church ..	453	1,179	246	252	107	71	..	..	2,308
Baptist Church ..	326	689	218	343	61	107	..	..	1,744
Church of Christ ..	149	326	48	259	21	36	..	..	839
Lutheran Church ..	19	39	138	189	1	..	..	..	386
Greek Orthodox Church ..	13	9	..	..	8	..	..	..	30
Unitarian Church ..	18	1	..	2	..	..	..	..	21
Salvation Army ..	128	64	37	43	20	10	..	..	302
Seventh-Day Adventists ..	28	8	7	5	9	3	..	..	60
Other Christians ..	51	143	305	26	2	101	..	..	628
Hebrew	53	38	7	3	9	1	..	..	111
Registrar's Office ..	939	449	184	200	380	43	3	..	2,198
Unspecified	14	..	17	..	..	1	..	..	32
Total	20,154	14,898	6,667	4,881	2,932	1,999	17	4	51,552

10. **Mark Signatures.**—The marriage registers afford some clue, even if an imperfect one, to the illiteracy of the adult population, since a small and constantly diminishing percentage of bridegrooms and brides sign the registers with marks.

(i) *Males and Females, 1914 to 1920.* The percentage of mark signatures by males and females during the last seven years have been very even, with a slight preponderance in the case of males :—

PERCENTAGE OF MARK SIGNATURES AT MARRIAGE, COMMONWEALTH, 1914 TO 1920.

Year.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Male	0.41	0.27	0.37	0.37	0.33	0.27	0.18
Female	0.38	0.27	0.32	0.31	0.29	0.27	0.14

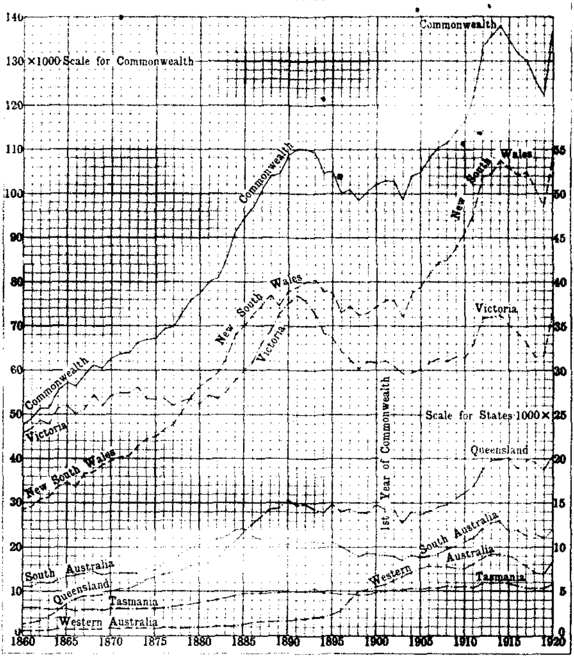
(ii) *Mark Signatures in Commonwealth States, 1914 to 1920.* The following table shews that there has been a marked decrease in every State over the whole period :—

PERCENTAGE OF MARK SIGNATURES AT MARRIAGE, COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	C'wealth.
1914 ..	0.36	0.19	0.59	0.45	0.53	1.00	1.47	..	0.39
1915 ..	0.25	0.11	0.26	0.32	0.43	1.47	..	..	0.27
1916 ..	0.41	0.18	0.32	0.35	0.32	0.98	10.53	..	0.35
1917 ..	0.41	0.16	0.32	[illegible]	0.49	1.14	7.35	..	0.34
1918 ..	0.37	0.13	[illegible]	[illegible]	0.43	1.41	5.13	..	0.31
1919 ..	0.29	0.18	[illegible]	[illegible]	0.32	0.89	16.00	..	0.27
1920 ..	0.17	0.09	[illegible]	[illegible]	0.31	0.90	5.88	..	0.16

A complete disappearance of mark signatures is hardly to be expected, for the available information tends to shew that about two-thirds of those who sign with marks are natives of their respective States, who apparently have not made use of the advantages offered to them by the State schools.

GRAPHS SHEWING TOTAL ANNUAL BIRTHS IN THE COMMONWEALTH AND STATES OF AUSTRALIA, 1860–1920.



(See Table page 82.)

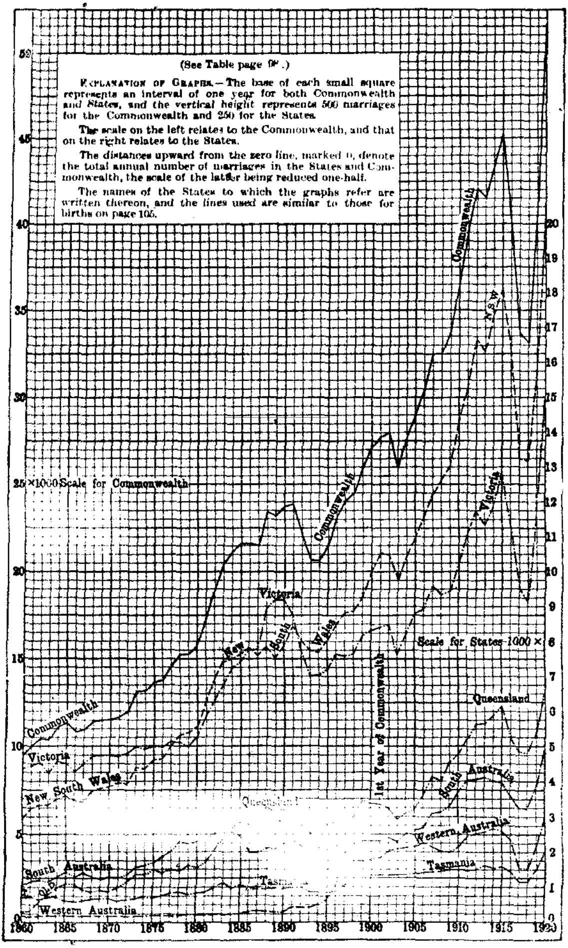
EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year for both Commonwealth and States, and the vertical height represents 2,000 persons for the Commonwealth and 1,000 for the States.

The scale on the left relates to the Commonwealth, and that on the right to the States.

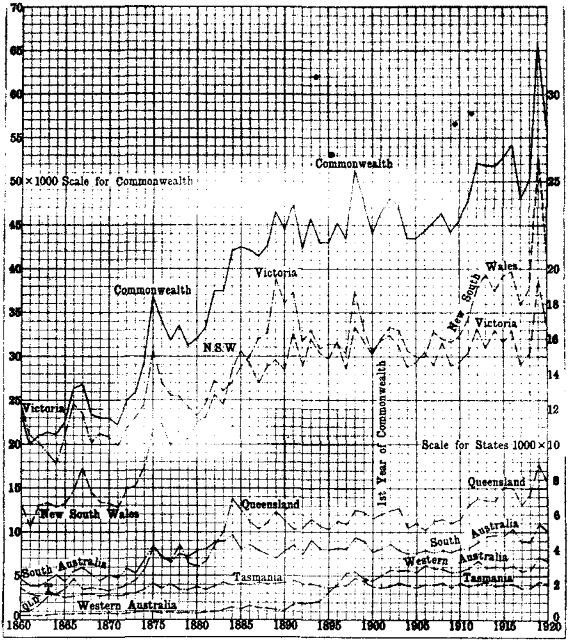
The distances upward from the common zero lines of the States and Commonwealth, marked 0, *denote the total annual number of births in the States and Commonwealth, the scale of the latter being* reduced one-half.

The names of the States to which the graphs refer are written thereon, and the characters of the lines used are as follows :—Commonwealth, ————————; New South Wales, — — — — — — —; Victoria, — · — · — · — · — ; Queensland, — · · — · · — · · —; South Australia, — · · · — · · · —; Western Australia, — — — · — — — · — — —. Tasmania, — — · — — · — — · —.

GRAPHS SHEWING TOTAL ANNUAL MARRIAGES IN THE COMMONWEALTH AND STATES OF AUSTRALIA, 1860–1920.



GRAPHS SHEWING TOTAL ANNUAL DEATHS IN THE COMMONWEALTH AND STATES OF AUSTRALIA, 1860–1920.



(See table on page 114.)

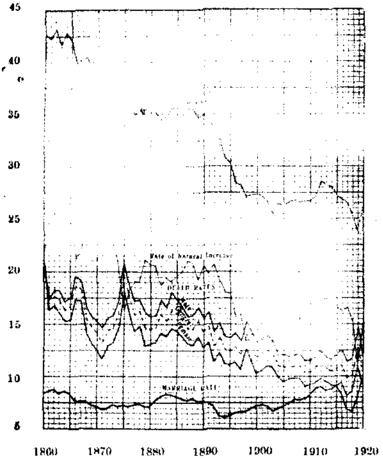
EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year for both Commonwealth and States, and the vertical height represents 1,000 persons for the Commonwealth and 500 for the States.

The scale on the left relates to the Commonwealth, and that on the right relates to the States.

The distances upwards from the common zero line for States and Commonwealth, marked 0, denote the total annual number of deaths in the States and Commonwealth, the scale of the latter being reduced one-half.

The names of the States to which the curves refer are written thereon, and the lines used are similar to those for births on page 105.

GRAPHS SHEWING GENERAL BIRTH, NATURAL INCREASE, DEATH (MALE, GENERAL, AND FEMALE) AND MARRIAGE RATES IN THE COMMONWEALTH OF AUSTRALIA, 1860–1920.



(See pages 83, 98, and 114.)

EXPLANATION OF GRAPHS.—The base of each small square represents one year's interval, and the vertical height, according to the curve, one half per thousand of the population—the basic line being five per thousand of the population.

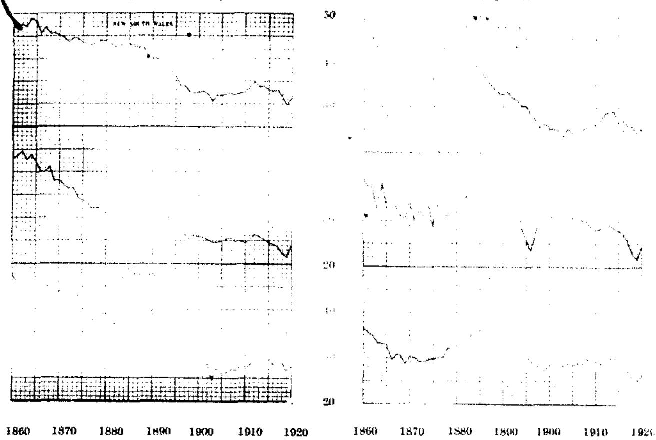
BIRTH RATE GRAPHS. (See next page.)

EXPLANATION OF GRAPHS.—The base of each small square represents one year's interval, and the vertical height one birth per thousand of the population—the basic line for each State being twenty per thousand of the population.

DEATH RATE GRAPHS. (See next page.)

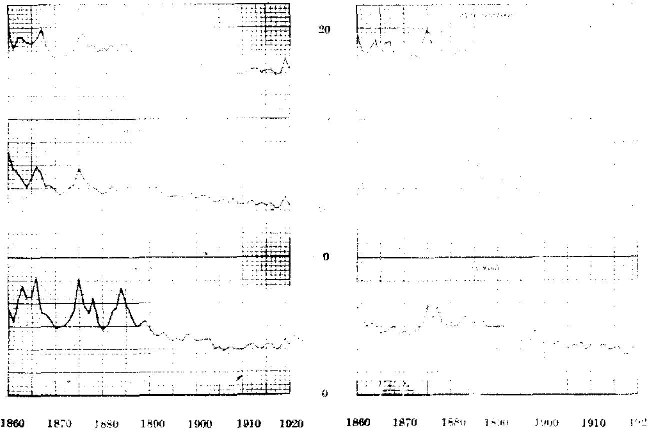
EXPLANATION OF GRAPHS.—The base of each small square represents one year's interval, and the vertical height one death per thousand of the population. The zero for each State is shewn by a thickened line.

GRAPHS SHEWING BIRTH RATES IN THE STATES OF NEW SOUTH WALES, VICTORIA, QUEENSLAND, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND TASMANIA, 1860-1920.



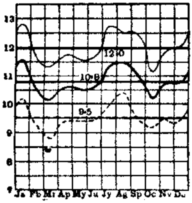
(See Table page 83.)

GRAPHS SHEWING DEATH RATES IN THE STATES OF NEW SOUTH WALES, VICTORIA, QUEENSLAND, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND TASMANIA, 1860-1920.

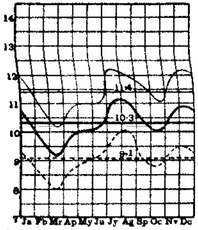


(See Table page 114.) For explanation of above graphs see page 108.

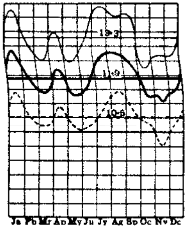
GRAPHS SHEWING GENERAL MONTHLY DEATH RATES 1907-1912.



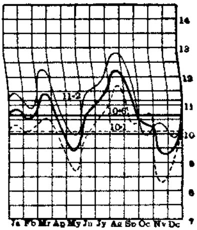
COMMONWEALTH.



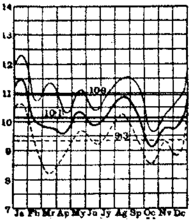
NEW SOUTH WALES.



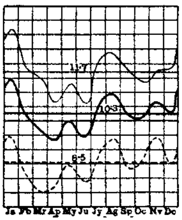
VICTORIA.



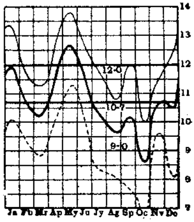
TASMANIA.



SOUTH AUSTRALIA.



QUEENSLAND.



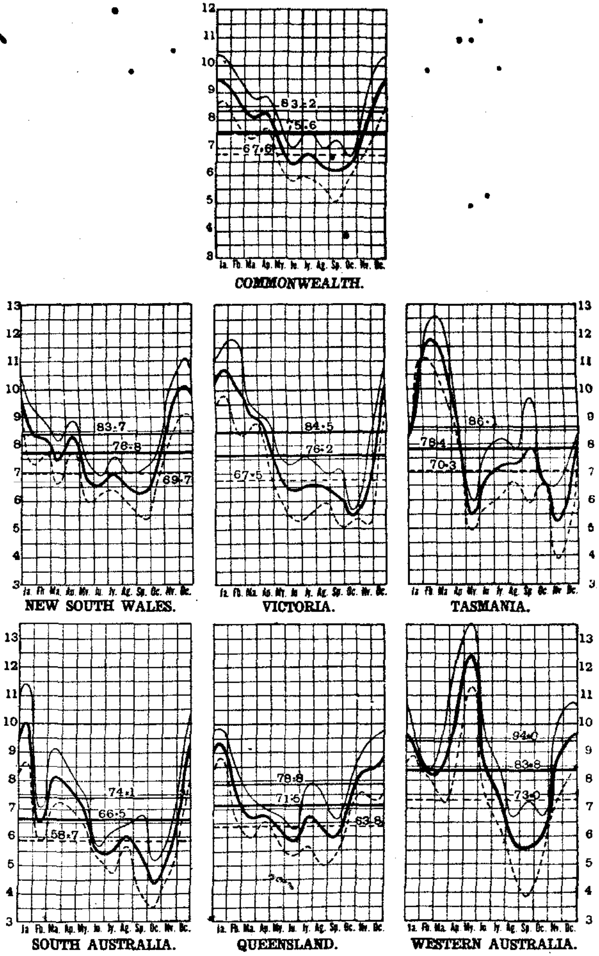
WESTERN AUSTRALIA.

Male Death Rates shewn : ————————

Female ,, ,, — — — — — —

General ,, ,, ————————

GRAPHS SHEWING INFANTILE MONTHLY DEATH RATES, 1907-1912.



Male Death Rates shewn : ————
Female " " — — — —
General " " ━━━━

§ 3. Deaths.

1. **Male and Female Deaths, 1914 to 1920.**—The total number of deaths registered in the Commonwealth from 1914 to 1920 inclusive, gives an annual average of 31,055 males and 23,116 females, the details being as follow:—

MALE DEATHS, COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	C'wealth.
1914 ..	10,984	9,017	4,132	2,621	1,942	1,063	69	7	29,835
1915 ..	11,439	8,860	4,695	2,587	1,887	1,083	89	14	30,654
1916 ..	11,500	8,901	4,653	2,721	1,981	1,146	108	6	31,016
1917 ..	10,445	7,952	4,027	2,398	1,802	926	52	7	27,609
1918 ..	10,914	8,079	4,359	2,430	1,774	959	66	4	28,585
1919 ..	15,256	10,508	5,337	2,927	2,340	1,175	82	7	37,632
1920 ..	12,088	9,059	4,824	2,814	2,161	1,055	48	4	32,053
Rate (a), 1920	11.81	12.15	12.58	12.40	12.12	9.34	14.47	3.33	11.89

(a) Number of deaths per 1,000 of mean population.

FEMALE DEATHS, COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	C'wealth.
1914 ..	7,736	7,486	2,599	2,092	1,101	855	12	4	21,885
1915 ..	8,146	6,963	2,864	2,107	1,105	932	8	3	22,128
1916 ..	8,346	7,588	2,861	2,356	1,104	908	14	2	23,179
1917 ..	7,496	6,603	2,528	1,967	967	842	11	6	20,420
1918 ..	7,902	7,098	2,792	1,960	1,059	843	8	2	21,664
1919 ..	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1920 ..	8,846	7,773	3,123	2,269	1,227	981	15	2	24,236
Rate (a), 1920	8.80	10.24	8.90	9.23	7.68	9.37	14.08	2.01	9.24

(a) Number of deaths per 1,000 of mean population.

2. **Male and Female Death Rates, 1920.**—The crude male and female death rates for 1920 only are given in the last line of the preceding tables. Queensland has the highest rate for males, and Victoria for females, while Tasmania has the lowest male, and Western Australia the lowest female death rate. The rates for the two Territories are based on very small numbers, and comparisons with the States would be misleading.

Owing to differences in the age constitution of the six States, the crude rates are not, however, strictly comparable, but for the purpose of calculating the "Index of Mortality" (see page 125) a distribution into five age-groups has been made, and the death rates are shewn for males and females in each State in five-year age groups for the three years 1910–1912, that is, for the census year and for the year immediately preceding and following, on page 120.

3. **Death Rates of Various Countries.**—A comparison with foreign States is, for the same reason, apt to shew the Commonwealth in too favourable a light, but even if an allowance for the different age constitution were made, it would still be found occupying a very enviable position. The following table gives particulars of the crude death rates of various countries for the latest available years:—

DEATH RATES (a) OF VARIOUS COUNTRIES.

Country.	Year.	Crude Death Rate.	Country.	Year.	Crude Death Rate.
Tasmania	1920	9.4	South Africa, Union of (Whites)	1918	17.2
New Zealand ..	1919	9.5	Finland	1917	17.6
Western Australia ..	1920	10.1	France	1913	17.7
New South Wales ..	1920	10.3	Sweden	1918	17.9
Australia	**1920**	**10.6**	United States (Registration area) ..	1918	18.2
South Australia ..	1920	10.8	Italy	1917	18.7
Queensland	1920	10.8	Switzerland.. ..	1918	19.0
Victoria	1920	11.2	Austria	1912	20.5
Ontario (Canada) ..	1919	11.9	Serbia	1912	21.1
England and Wales ..	1920	12.4	Bulgaria	1911	21.5
United Kingdom ..	1920	12.8	Japan	1916	21.6
Denmark	1919	13.1	Spain	1919	23.3
Netherlands ..	1919	13.2	Hungary	1912	23.3
Scotland	1920	14.0	Rumania	1914	23.8
Belgium	1912	14.8	Jamaica	1917	26.9
Prussia	1913	14.9	Chile	1914	27.8
Ireland	1920	14.9	Russia, European ..	1909	28.9
Germany	1913	15.0	Ceylon	1919	35.6
Norway	1918	16.4			
Quebec (Canada) ..	1917	16.8			

(a) Number of deaths per 1,000 of mean population.

4. Total Deaths, 1914 to 1920.—The total number of deaths in each of the Commonwealth States during the seven years 1914 to 1920 is shewn below :—

TOTAL DEATHS, COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	C'wealth.
1914	18,720	16,503	6,731	4,713	3,043	1,918	81	11	51,720
1915	19,585	15,823	7,559	4,694	2,992	2,015	97	17	52,782
1916	19,846	16,489	7,514	5,077	3,085	2,056	122	8	54,197
1917	17,941	14,555	6,555	4,365	2,769	1,768	63	13	48,029
1918	18,816	15,177	7,151	4,390	2,833	1,802	74	6	50,249
1919	26,344	19,370	8,856	5,475	3,590	2,192	85	18	65,930
1920	20,934	16,832	7,947	5,083	3,388	2,036	63	6	56,289

5. Crude Death Rates, 1914 to 1920.—The death rate for the Commonwealth during the period under review reached its maximum in 1919 owing to the outbreak of influenza.

CRUDE DEATH RATE (a), COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	C'wealth.
1914 ..	10.11	11.59	9.97	10.71	9.41	9.67	21.59	4.16	10.51
1915 ..	10.48	11.09	11.00	10.68	9.28	10.11	22.03	6.89	10.66
1916 ..	10.63	11.70	11.09	11.73	9.80	10.38	25.16	3.06	11.04
1917 ..	9.56	10.36	9.73	10.10	8.97	8.89	12.71	5.21	9.80
1918 ..	9.84	10.70	10.39	9.97	9.11	8.84	14.82	2.47	10.08
1919 ..	13.40	13.21	12.43	12.0[illegible]	11.10	10.37	17.68	7.79	12.62
1920 ..	10.32	11.19	10.82	10.76	10.14	9.35	14.37	2.76	10.62

(a) Number of deaths per 1,000 of mean population for year.

6. Male and Female Death Rates, 1914 to 1920.—The large death rate in 1919 was due, as already stated, to an exceptional cause. The rates in the period 1914–20, excluding 1919, were remarkably steady, averaging about 12 per 1,000 for males, and 9 per 1,000 for females.

MALE AND FEMALE DEATH RATES (a), COMMONWEALTH, 1914 TO 1920.

Year.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Male rate ..	11.67	12.08	12.65	11.47	11.70	14.66	11.98
Female rate ..	9.27	9.16	9.44	8.18	8.54	10.98	9.24
Crude total rate ..	10.51	10.66	11.04	9.80	10.09	12.82	10.62

(a) Number of deaths per 1,000 of mean population.

7. **Infantile Death Rate.**—(i) *Deaths and Death Rates of Male and Female Infants, 1914 to 1920.* Steady improvement in the infantile death rate was shewn during the period under review until 1919 and 1920, when the rate suddenly rose to a figure almost as great as in 1914. In the following table, which shews both the total number of deaths of children under one year and the rate per thousand births since 1914, males and females are distinguished. The universal experience that during the first few years of life the excess of male births tends to disappear as a consequence of the higher death rate of male infants, is confirmed by the fact that out of 471,686 male infants born from 1914 to 1920, 34,493 died during their first year of life, while of 446,994 female infants the number who died was only 26,243 :—

NUMBER OF INFANTILE DEATHS AND RATES OF INFANTILE MORTALITY, COMMONWEALTH, 1914 TO 1920.

Year.	Registered Deaths under one year.			Rate of Infantile Mortality (a).		
	Males.	Females.	Total.	Males.	Females.	Total.
1914	5,582	4,279	9,861	79.06	63.51	71.47
1915	5,127	3,980	9,107	74.25	60.47	67.52
1916	5,186	4,057	9,243	76.82	63.47	70.33
1917	4,232	3,034	7,266	63.27	48.10	55.91
1918	4,178	3,186	7,364	64.82	51.99	58.57
1919	4,802	3,662	8,464	76.31	61.69	69.21
1920	5,386	4,045	9,431	76.66	61.15	69.14

(a) Number of deaths under 1 year per 1,000 births registered.

(ii) *Infantile Mortality, 1914 to 1920.* Divided among the States and Territories the rates of infantile mortality during the last seven years were as follows :—

RATES (a) OF INFANTILE MORTALITY, COMMONWEALTH, 1914 TO 1920.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Territory.	Com'-wealth.
1914 ..	69.29	78.27	63.93	75.79	68.12	71.46	51.72	22.73	71.47
1915 ..	67.67	68.78	64.33	67.04	66.54	72.37	65.57	42.55	67.52
1916 ..	67.15	74.63	70.27	73.21	66.22	74.97	40.54	15.87	70.33
1917 ..	56.93	56.82	53.87	53.06	57.09	52.27	43.48	45.45	55.91
1918 ..	59.02	61.75	56.66	51.25	57.13	60.80	28.57	20.41	58.57
1919 ..	71.83	67.90	71.88	64.[illegible]	61.12	64.97	66.04	111.11	69.21
1920 ..	69.41	73.70	63.24	67.34	66.02	65.51	190.48	66.67	69.14

(a) Number of deaths under 1 year per 1,000 births registered.

The movement has been irregular. In 1917 a rate of 55.91 was recorded, but since that year it has not been so favourable. The rate for 1920 is only slightly less than that for 1914.

A considerable decrease is shewn by every State during 1917, and the rates for that year are the lowest on record in every State and in the Commonwealth as a whole, whilst only a very slight increase was registered in 1918. In 1919 and 1920 increases occurred in every State, especially in New South Wales.

The total number of births, and of deaths of children under one year of age, and the average rate of infantile mortality for the seven years 1914 to 1920 are shewn in the following table for each of the fifty-nine districts for which the vital statistics of the Commonwealth have been tabulated during that period. To afford a better idea of the geographical position of the districts, the name of a town situated in a fairly central part of each district has been added.* The figures for the Federal Territory and for Lord Howe Island are included for the sake of completeness, but are too small to be used in comparison with others.

INFANTILE MORTALITY FOR THE SEVEN YEARS 1914 TO 1920.

States and Territories.	Districts.	Towns.	Total Births, 1914-20.	Total Deaths of Children under one year, 1914-20.	Average Infantile Mortality per 1,000 Births, 1914-20.
New South Wales ..	Metropolitan	Sydney ..	146,608	10,121	69.03
" ..	North Coast	Grafton ..	29,372	1,454	49.50
" ..	Lower Hunter	Newcastle ..	38,304	2,720	71.01
" ..	Cumberland	Parramatta ..	18,918	1,146	60.56
" ..	South Coast	Nowra ..	14,704	854	58.08
" ..	Northern Tableland ..	Armidale ..	19,284	1,178	61.09
" ..	Central Tableland ..	Bathurst ..	24,252	1,759	72.53
" ..	Southern Tableland ..	Goulburn ..	19,099	1,179	61.78
" ..	North-Western Slope ..	Moree ..	7,863	515	65.50
" ..	Central-Western Slope ..	Dubbo ..	13,200	874	66.17
" ..	South-Western Slope ..	Temora ..	14,240	725	50.91
" ..	Riverina	Hay ..	8,061	445	55.29
" ..	Plains East of Darling ..	Cobar ..	2,871	226	78.72
" ..	Trans-Darling Plains ..	Broken Hill ..	7,500	809	107.87
" ..	Lord Howe Island ..	— ..	7	..	..
Victoria	Metropolitan	Melbourne ..	122,655	9,640	78.59
"	Central	Geelong ..	22,265	1,402	62.97
"	North-Central	Kyneton ..	9,634	551	57.19
"	Western	Hamilton ..	24,985	1,494	59.80
"	Wimmera	Horsham ..	9,969	569	57.08
"	Mallee	Ultima ..	7,105	438	61.65
"	Northern	Rochester ..	22,790	1,414	62.05
"	North-Eastern	Beechworth ..	7,314	370	50.59
"	Gippsland	Sale ..	11,211	564	50.31
Queensland ..	Metropolitan	Brisbane ..	39,815	2,940	73.84
" ..	Moreton	Ipswich ..	16,807	876	52.12
" ..	Wide Bay	Maryborough	16,802	909	54.10
" ..	Port Curtis	Rockhampton	11,115	775	69.72
" ..	Edgecumbe	Townsville ..	13,790	792	57.43
" ..	Rockingham	Cairns ..	6,972	854	60.77
" ..	York Peninsula ..	Cooktown ..	1,111	79	71.11
" ..	Carpentaria	Croydon ..	2,542	215	84.58
" ..	Central-Western ..	Winton ..	745	74	99.33
" ..	South-Western	Charleville ..	1,800	151	83.89
" ..	Central	Blackall ..	4,188	269	64.23
" ..	Maranoa	Roma ..	2,696	172	63.80
" ..	Downs	Toowoomba ..	18,852	1,089	57.77
South Australia ..	Metropolitan	Adelaide ..	40,789	2,919	71.56
" ..	Central	Gawler ..	16,948	846	49.92
" ..	Lower North	Redruth ..	12,963	976	75.29
" ..	Upper North	Port Augusta	4,012	263	65.55
" ..	South-Eastern	Mount Gambier	4,348	204	46.92
" ..	Western	Port Lincoln ..	3,270	130	39.76
Western Australia ..	Metropolitan	Perth ..	27,153	1,919	70.67
" ..	Northern Agricultural ..	Geraldton ..	8,108	464	57.22
" ..	South-Western	Katanning ..	12,935	597	46.15
" ..	Eastern Goldfields ..	Kalgoorlie ..	6,816	498	73.06
" ..	Northern Goldfields ..	Pilbara ..	1,373	102	74.29
" ..	North-Western	Roebourne ..	266	12	45.11
" ..	Northern	Broome ..	207	20	96.62
Tasmania ..	Hobart	Hobart ..	9,777	790	80.80
" ..	Launceston	Launceston ..	6,022	449	74.56
" ..	North-Eastern	Scottsdale ..	4,256	237	55.69
" ..	North-Western	Stanley ..	9,790	574	58.62
" ..	Midland	Zeehan ..	4,854	292	60.18
" ..	South-Eastern	Sorell ..	3,911	215	54.97
" ..	South-Western	Franklin ..	1,100	72	65.45
Northern Territory	..	Darwin ..	536	85	[illegible]
Federal Territory	..	Canberra ..	300	10	3[illegible]

(iii) *Infantile Mortality in Various Countries and Cities.* Compared with European and American countries, the cities and States of the Commonwealth occupy a very favourable position. It may be pointed out also in connexion with the rates hereunder that a high birth rate is often, though not invariably, accompanied by a high infantile death rate. The figures in the subjoined tables relate to the latest years for which returns are available :—

RATE(*a*) OF INFANTILE MORTALITY IN VARIOUS COUNTRIES.

Country.	Year.	Rate of Infantile Mortality. (*a*)	Crude Birth Rate. (*b*)	Country.	Year.	Rate of Infantile Mortality. (*a*)	Crude Birth Rate. (*b*)
New Zealand ..	1919	45	21.5	United States (Registration area)	1918	101	24.4
Netherlands ..	1919	50	24.2				
Norway ..	1917	54	24.4	Scotland ..	1919	102	21.7
Queensland ..	1920	63	27.6	Belgium ..	1912	120	22.6
Tasmania ..	1920	66	26.4	Finland ..	1917	134	24.3
Western Australia	1920	66	24.4	Quebec (Canada)	1917	136	35.7
South Australia	1920	67	25.5	Italy	1917	140	19.0
New South Wales	1920	69	26.6	Prussia ..	1912	146	28.9
Australia ..	**1920**	**69**	**25.7**	Serbia	1911	146	36.2
Victoria ..	1920	74	24.1	Germany ..	1913	151	27.5
Sweden ..	1915	76	20.3	Bulgaria ..	1911	156	40.2
France ..	1912	78	19.0	Japan	1916	168	32.9
South Africa, Union of (Whites)	1919	80	29.0	Austria ..	1912	180	31.3
				Jamaica ..	1917	185	34.1
Ireland ..	1919	87	20.0	Hungary ..	1912	186	36.3
Switzerland ..	1918	88	18.4	Rumania ..	1914	187	42.5
England and Wales	1919	89	18.5	Spain	1919	192	28.3
United Kingdom	1919	90	19.0	Ceylon ..	1919	223	34.2
Denmark ..	1915	95	24.2	Russia, European	1909	248	44.0
Ontario (Canada)	1919	96	22.1	Chile	1914	286	37.0

(*a*) Number of deaths under 1 year per 1,000 births registered. (*b*) Number of births per 1,000 of mean population.

RATE (*a*) OF INFANTILE MORTALITY IN VARIOUS CITIES.

City.	Year.	Rate of Infantile Mortality. (*a*)	City.	Year.	Rate of Infantile Mortality. (*a*).
Amsterdam	1920	47	Glasgow	1920	107
Stockholm	1920	48	Antwerp	1920	109
Christiania	1920	55	Monte Video ..	1916	111
Zürich	1916	55	Liverpool	1920	111
Rome	1915	56	Lyons	1916	115
Auckland	1918	58	Aberdeen	1920	121
Brisbane	1920	70	Milan	1916	124
Wellington	1918	71	Genoa	1916	126
Geneva	1916	73	Belfast	1920	132
Sydney	1920	74	Leipzig	1920	133
Adelaide	1920	75	Budapest	1912	141
Hobart	1920	75	Dublin	1920	143
London	1920	75	Chicago	1916	145
Perth	1920	76	Marseilles	1916	157
Birmingham ..	1920	83	Berlin	1920	161
Melbourne	1920	84	Vienna	1920	161
New York	1920	86	Brussels	1912	166
Copenhagen	1920	88	Rio de Janeiro ..	1912	174
Edinburgh	1920	89	Madrid	1915	177
Toronto	1917	92	Bucharest	1912	185
Buenos Aires ..	1916	94	Florence	1916	192
Manchester	1920	94	Montreal	1911	242
Paris	1920	98	Petrograd	1912	249
Hamburg	1920	105	Moscow	1915	317
Washington	1916	106	Bombay	1920	556

(*a*) Number of deaths under 1 year per 1,000 births registered.

8. Deaths in Age-Groups, 1914 to 1920.—A distribution into age-groups has been made of the 379,196 deaths which occurred in the Commonwealth from 1914 to 1920, and the results have been tabulated for each State. It is, however, sufficient here to shew the results for the Commonwealth as a whole, which are as follows :—

DEATHS IN AGE-GROUPS, COMMONWEALTH, 1914 TO 1920.

Ages.	Males.	Females.	Total.	Percentage of Total Males.	Percentage of Total Females.	Percentage of Total.
Under 1 year ..	34,493	26,243	60,736	15.87	16.22	16.02
1 year and under 5 ..	12,365	10,761	23,126	5.69	6.65	6.10
5 years and under 20 ..	11,241	9,314	20,555	5.17	5.76	5.42
20 years and under 40	29,460	25,822	55,282	13.55	15.96	14.58
40 years and under 60	48,492	29,379	77,871	22.31	18.15	20.53
60 years and under 65	15,691	9,011	24,702	7.22	5.57	6.51
65 years and over ..	65,260	51,213	116,473	30.02	31.65	30.72
Age not stated ..	384	67	451	0.17	0.04	0.12
Total ..	217,386	161,810	379,196	100.00	100.00	100.00

9. Deaths at Single Ages and in Age-Groups, 1920.—The 56,289 deaths which were registered in the Commonwealth in the year 1920 will be found tabulated under single years, and in groups of five years for each State and Territory, in "Bulletin No. 38, Commonwealth Demography, 1920." It has been thought advisable to tabulate the deaths during the first two years of life in greater detail. The first month has, therefore, been shewn in weeks, and the twenty-three months up to the end of the second year in months. This tabulation shews that a great number of children died during the first week, the number gradually diminishing towards the end of the second year. The particulars relating to the Commonwealth are given in the following table :—

DEATHS AT SINGLE AGES AND IN AGE-GROUPS, COMMONWEALTH, 1920.

Ages.	Males.	Females.	Total.	Ages.	Males.	Females.	Total.
Under 1 week	1,886	1,267	3,153	16 months and under 17 ..	90	76	166
1 week and under 2 ..	328	232	560	17 " " " 18 ..	64	55	119
2 weeks " " 3 ..	209	158	367	18 " " " 19 ..	94	73	167
3 " " " 4 ..	145	116	261	19 " " " 20 ..	63	48	111
				20 " " " 21 ..	50	41	91
Total under 1 month ..	2,548	1,793	4,341	21 " " " 22 ..	62	59	121
				22 " " " 23 ..	46	47	93
				23 " " " 24 ..	40	38	78
1 month and under 2 ..	447	346	793				
2 months " " 3 ..	393	289	682	Total under 2 years ..	6,505	5,014	11,519
3 " " " 4 ..	321	282	603				
4 " " " 5 ..	299	244	543				
5 " " " 6 ..	248	202	450	2 years	464	396	860
6 " " " 7 ..	250	185	435	3 "	329	267	596
7 " " " 8 ..	178	164	342	4 "	210	202	412
8 " " " 9 ..	196	124	320				
9 " " " 10 ..	157	145	302	Total under 5 years ..	7,508	5,879	13,387
10 " " " 11 ..	172	155	327				
11 " " " 12 ..	177	116	293				
				5 years	182	160	342
Total under 1 year ..	5,386	4,045	9,431	6 "	173	134	307
				7 "	128	126	254
12 months and under 13 ..	291	258	549	8 "	97	97	194
13 " " " 14 ..	103	87	190	9 "	98	87	185
14 " " " 15 ..	119	103	222				
15 " " " 16 ..	97	84	181	Total 5 years and under 10	678	604	1,282

DEATHS AT SINGLE AGES AND IN AGE-GROUPS, 1920—*continued.*

Ages.	Males.	Females.	Total.
10 years	83	70	153
11 ,, ...	61	62	123
12 ,, ...	77	64	141
13 ,, ...	86	72	158
14 ,, ...	99	63	162
Total 10 years and under 15	406	331	737
15 years	103	77	180
16 ,, ...	110	69	179
17 ,, ...	109	82	191
18 ,, ...	116	100	216
19 ,, ...	127	117	244
Total 15 years and under 20	565	445	1,010
20 years	147	100	247
21 ,, ...	136	125	261
22 ,, ...	134	123	257
23 ,, ...	141	141	282
24 ,, ...	148	145	293
Total 20 years and under 25	706	634	1,340
25 years	159	155	314
26 ,, ...	186	180	366
27 ,, ...	173	191	364
28 ,, ...	186	198	384
29 ,, ...	171	176	347
Total 25 years and under 30	875	900	1,775
30 years	211	175	386
31 ,, ...	176	178	354
32 ,, ...	222	201	423
33 ,, ...	180	193	373
34 ,, ...	179	146	325
Total 30 years and under 35	968	893	1,861
35 years	224	168	392
36 ,, ...	200	190	390
37 ,, ...	194	154	348
38 ,, ...	227	212	439
39 ,, ...	207	210	417
Total 35 years and under 40	1,052	934	1,986
40 years	261	203	464
41 ,, ...	175	144	319
42 ,, ...	260	171	431
43 ,, ...	209	197	406
44 ,, ...	243	188	431
Total 40 years and under 45	1,148	903	2,051
45 years	298	195	493
46 ,, ...	254	164	418
47 ,, ...	262	157	419
48 ,, ...	297	210	507
49 ,, ...	317	197	514
Total 45 years and under 50	1,428	923	2,351
50 years	360	233	593
51 ,, ...	293	140	433
52 ,, ...	363	233	596
53 ,, ...	374	199	573
54 ,, ...	426	275	701
Total 50 years and under 55	1,816	1,080	2,896
55 years	435	230	665
56 ,, ...	466	253	719
57 ,, ...	435	227	662
58 ,, ...	506	290	796
59 ,, ...	442	280	722
Total 55 years and under 60	2,284	1,280	3,564
60 years	614	295	909
61 ,, ...	366	244	610
62 ,, ...	506	295	801
63 ,, ...	503	316	819
64 ,, ...	588	315	903
Total 60 years and under 65	2,577	1,465	4,042
65 years	621	329	950
66 ,, ...	446	287	733
67 ,, ...	456	248	704
68 ,, ...	444	320	764
69 ,, ...	427	270	697
Total 65 years and under 70	2,394	1,454	3,848
70 years	533	311	844
71 ,, ...	408	271	679
72 ,, ...	444	362	806
73 ,, ...	393	325	718
74 ,, ...	447	369	816
Total 70 years and under 75	2,225	1,638	3,863
75 years	489	424	913
76 ,, ...	511	419	930
77 ,, ...	393	341	734
78 ,, ...	474	383	857
79 ,, ...	370	347	717
Total 75 years and under 80	2,237	1,914	4,151
80 years	446	383	829
81 ,, ...	311	247	558
82 ,, ...	336	314	650
83 ,, ...	292	283	575
84 ,, ...	302	274	576
Total 80 years and under 85	1,687	1,501	3,188
85 years	258	278	536
86 ,, ...	237	220	457
87 ,, ...	214	188	402
88 ,, ...	166	177	343
89 ,, ...	127	133	260
Total 85 years and under 90	1,002	996	1,998
90 years	136	126	262
91 ,, ...	75	66	141
92 ,, ...	69	56	125
93 ,, ...	42	52	94
94 ,, ...	31	48	79
Total 90 years and under 95	353	348	701
95 years	19	25	44
96 ,, ...	20	22	42
97 ,, ...	8	15	23
98 ,, ...	8	15	23
99 ,, ...	5	7	12
Total 95 yrs. and under 100	60	84	144
100 years	6	6	12
101 ,, ...	6	2	8
102 ,, ...	1	2	3
103 ,, ...	2	..	2
104 ,, ...	1	2	3
105 ,, ...	3	..	3
106 ,, ...	..	1	1
107 ,, ...	..	1	1
Total 100 years and over	19	14	33
Age not stated	65	16	81
Total all ages	32,053	24,236	56,289

The following tables shew the death rate per 1,000 living at each age for the three years 1910, 1911 and 1912, viz., the Census year 1911, and the years immediately preceding and following. The Northern Territory is included with South Australia, and the Federal Territory with New South Wales :—

AVERAGE ANNUAL DEATH RATES PER 1,000 LIVING IN VARIOUS AGE-GROUPS, 1910 TO 1912.

Age Group.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
MALES.							
0 to 4 years ..	25.40	24.71	23.30	21.30	28.44	24.65	24.71
5 ,, 9 ,, ..	2.11	2.39	2.39	1.85	2.61	2.53	2.26
10 ,, 14 ,, ..	1.75	1.69	1.74	1.40	2.16	1.70	1.72
15 ,, 19 ,, ..	2.42	2.41	2.92	2.43	2.86	2.59	2.52
20 ,, 24 ,, ..	3.37	3.27	4.83	3.00	5.17	3.57	3.65
25 ,, 29 ,, ..	3.91	4.13	5.57	3.57	5.86	4.49	4.35
30 ,, 34 ,, ..	4.90	4.83	5.96	5.40	6.75	3.77	5.20
35 ,, 39 ,, ..	6.08	6.31	7.54	7.15	8.41	6.28	6.68
40 ,, 44 ,, ..	8.25	8.26	9.65	8.31	10.37	6.17	8.58
45 ,, 49 ,, ..	10.91	11.05	13.83	10.27	14.96	9.25	11.58
50 ,, 54 ,, ..	14.78	15.33	17.77	13.02	17.66	14.08	15.36
55 ,, 59 ,, ..	21.93	21.41	23.01	19.99	24.65	16.24	21.67
60 ,, 64 ,, ..	30.99	31.52	31.25	31.94	35.06	28.39	31.38
65 ,, 69 ,, ..	45.80	50.53	51.53	45.94	45.96	38.29	47.69
70 ,, 74 ,, ..	71.49	74.28	70.94	58.38	78.74	58.79	70.88
75 ,, 79 ,, ..	117.05	115.68	112.40	99.49	110.54	108.60	114.04
80 ,, 84 ,, ..	181.34	174.56	190.89	165.68	185.23	148.67	176.32
85 ,, 89 ,, ..	252.58	270.76	202.56	225.42	328.21	313.87	257.73
90 and over ..	375.35	365.88	272.73	279.57	321.43	465.61	357.11
FEMALES.							
0 to 4 years ..	20.96	19.79	20.07	16.96	21.76	21.27	20.22
5 ,, 9 ,, ..	1.78	2.27	2.29	1.71	2.58	1.88	2.04
10 ,, 14 ,, ..	1.41	1.81	1.45	1.25	1.77	2.51	1.59
15 ,, 19 ,, ..	1.96	2.42	2.20	2.19	2.01	3.47	2.22
20 ,, 24 ,, ..	3.22	3.74	3.76	3.44	3.82	4.09	3.53
25 ,, 29 ,, ..	4.02	4.31	4.68	4.79	4.42	4.66	4.31
30 ,, 34 ,, ..	4.51	4.98	4.46	4.92	4.88	4.93	4.73
35 ,, 39 ,, ..	5.84	6.02	5.79	5.71	6.15	7.68	5.97
40 ,, 44 ,, ..	6.24	6.63	7.11	5.80	6.73	5.67	6.44
45 ,, 49 ,, ..	7.63	8.05	9.07	7.91	8.40	7.02	7.98
50 ,, 54 ,, ..	11.22	11.30	11.73	9.72	11.82	8.76	11.07
55 ,, 59 ,, ..	14.38	15.55	14.13	12.63	14.18	15.80	14.60
60 ,, 64 ,, ..	21.69	22.27	21.64	20.54	20.44	19.50	21.60
65 ,, 69 ,, ..	37.81	36.48	34.69	35.01	34.59	35.09	36.47
70 ,, 74 ,, ..	55.75	58.36	67.82	48.28	54.52	55.11	58.13
75 ,, 79 ,, ..	97.62	98.27	86.11	91.32	92.45	93.30	95.91
80 ,, 84 ,, ..	154.31	157.19	139.33	137.87	144.14	150.77	151.89
85 ,, 89 ,, ..	184.60	225.65	200.82	202.17	186.67	254.45	206.59
90 and over ..	307.43	361.44	351.52	328.17	358.97	317.88	334.87

AVERAGE ANNUAL DEATH RATES PER 1,000 LIVING, IN VARIOUS AGE-GROUPS, 1910 TO 1912—*continued.*

Age-Group.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
			PERSONS.				
0 to 4 years ..	23.21	22.29	21.72	19.16	25.15	23.00	22.50
5 ,, 9 ,, ..	1.95	2.33	2.34	1.78	2.60	2.21	2.15
10 ,, 14 ,, ..	1.58	1.75	1.60	1.33	1.97	2.10	1.66
15 ,, 19 ,, ..	2.19	2.42	2.57	2.31	2.45	3.03	2.37
20 ,, 24 ,, ..	3.30	3.51	4.33	3.22	4.60	3.84	3.59
25 ,, 29 ,, ..	3.96	4.22	5.17	4.17	5.29	4.58	4.33
30 ,, 34 ,, ..	4.71	4.92	5.29	5.16	6.00	4.34	4.97
35 ,, 39 ,, ..	5.97	6.16	6.78	6.44	7.51	6.94	6.34
40 ,, 44 ,, ..	7.31	7.44	8.58	7.09	9.06	5.94	7.59
45 ,, 49 ,, ..	9.45	9.59	11.95	9.14	12.73	8.20	9.96
50 ,, 54 ,, ..	13.25	13.40	15.48	11.49	15.64	11.63	13.48
55 ,, 59 ,, ..	18.63	18.52	19.59	16.67	20.87	16.04	18.52
60 ,, 64 ,, ..	26.79	26.86	27.44	26.48	29.25	24.08	26.87
65 ,, 69 ,, ..	42.18	43.26	44.44	40.58	41.22	36.60	42.37
70 ,, 74 ,, ..	64.41	65.98	65.87	53.36	68.67	56.91	63.91
75 ,, 79 ,, ..	108.56	107.11	101.89	95.17	103.30	100.66	105.58
80 ,, 84 ,, ..	169.10	171.29	166.15	150.82	170.12	149.75	164.97
85 ,, 89 ,, ..	217.51	248.40	201.72	211.72	266.67	284.83	232.64
90 and over ..	337.70	363.94	308.54	307.81	333.33	404.98	345.44

The tables shew a high death rate for children under five years of age, which rapidly diminishes until, at ages 10 to 14, a rate of 1.66 per 1,000 is shewn, which is the lowest at any age. The rate then gradually rises with increasing age until, at the ages 90 and over, more than one-third die every year.

10. **Deaths of Centenarians, 1920.**—Particulars as to the thirty-three persons who died in 1920, aged 100 years and upwards, are given in the following table. It must, of course, be understood that while the Registrars-General of the various States take the greatest care to have statements as to abnormally high ages verified as far as possible, no absolute reliance can be placed on the accuracy of the ages shewn, owing to the well-known tendency of very old people to overstate their ages. No attempt has been made by the Commonwealth Bureau of Census and Statistics to verify the truth of the statements made. The fact must not be disregarded in connexion with this question, that while parish registers in the United Kingdom often date very far back, compulsory registration of births dates practically only from 1874, the Act passed in 1836 having left many loop-holes open for those unwilling to register the births of their children.

DEATHS OF CENTENARIANS, COMMONWEALTH, 1920.

Age.	Locality where Death occurred.	State.	Cause of Death.	Occupation.	Birthplace.	Length of Residence in Commonwealth.	Conjugal Condition.
				MALES.			
Yrs.							
105	Young ..	N.S.W. ..	Senility ..	Farmer ..	Tasmania	Native ..	Married
105	Hamilton ..	Victoria ..	Cerebral hæmorrhage	Labourer ..	Ireland ..	Unspecified	Single
105	Geraldton ..	W. Australia	Senility ..	Farm labourer	Unspecified	Unspecified	Unspecified
104	Grafton ..	N.S.W. ..	,, ..	Farmer ..	England ..	55 years ..	Married
103	Nhill ..	Victoria ..	,, ..	Labourer ..	Ireland ..	80 ,, ..	Single
103	Perth ..	W. Australia	,, ..	Unspecified	,, ..	56 ,, ..	Unspecified
102	Waubra ..	Victoria ..	,, ..	Labourer ..	,, ..	60 ,, ..	Married
101	Ballina ..	N.S.W. ..	Cystitis ..	Farmer ..	N.S.W. ..	Native ..	,,
101	Wellington	,, ..	Senility ..	Labourer ..	Unspecified	Unspecified	,,
101	Maryborough	Queensland	Apoplexy ..	Unspecified	Ireland ..	80 years ..	Single

DEATHS OF CENTENARIANS, COMMONWEALTH, 1920—*continued.*

Age.	Locality where Death occurred.	State.	Cause of Death.	Occupation.	Birthplace.	Length of Residence in Commonwealth.	Conjugal Condition.
			MALES—continued.				
Yrs. 101	Adelaide ..	S. Australia	Pulmonary oedema	Dealer ..	England ..	68 years ..	Married
101	Kapunda ..	,,	Pneumonia	Farmer ..	,, ..	70 ,, ..	,,
101	,, ..	,,	Senility ..	Labourer..	,, ..	79 ,, ..	,,
100	Dubbo ..	N.S.W. ..	,, ..	Farmer ..	,, ..	75 ,, ..	,,
100	Parramatta	,, ..	Epithelioma of back	Contractor	N.S.W. ..	Native ..	,,
100	Taree ..	,, ..	Broncho-pneumonia	Farmer ..	England ..	70 years ..	,,
100	Hopetoun	Victoria ..	Senility ..	,, ..	Germany..	64 ,, ..	,,
100	Brisbane ..	Queensland	,, ..	Miner ..	Ireland ..	78 ,, ..	,,
100	Smithfield..	S. Australia	,, ..	Farmer ..	Germany..	74 ,, ..	,,
			FEMALES.				
Yrs. 107	Norwood ..	S. Australia	Acute bronchitis	..	England ..	81 years ..	Married
106	White Cliffs	N.S.W. ..	Senility ..	..	Unspecified	Unspecified	Unspecified
104	Bourke ..	,, ..	Valvular disease of heart	..	Tasmania	Native ..	Married
104	Longford ..	Tasmania	Senility ..	..	Ireland ..	Unspecified	,,
102	Kempsey ..	N.S.W. ..	,, ..	..	,, ..	64 years ..	,,
102	Auburn ..	,, ..	,, ..	..	,, ..	72 ,, ..	,,
101	St. Kilda ..	Victoria ..	,, ..	..	Scotland ..	60 ,, ..	,,
101	Wandiligong	,, ..	,, ..	..	Ireland ..	80 ,, ..	,,
100	Albury ..	N.S.W. ..	,, ..	..	England ..	68 ,, ..	,,
100	Chatswood	,, ..	,, ..	..	,, ..	65 ,, ..	,,
100	St. Leonards	,, ..	,, ..	..	Ireland ..	Unspecified	Single
100	Golden Square	Victoria ..	,, ..	..	England ..	69 years ..	Married
100	Preston ..	,, ..	,, ..	..	,, ..	78 ,, ..	,,
100	Westbury ..	Tasmania	,, ..	..	Ireland ..	86 ,, ..	,,

11. Length of Residence in the Commonwealth of Persons who Died in 1920.—The length of residence in the Commonwealth of all persons whose deaths were registered in the year 1920 has been tabulated for all the States, and a summary of the results is shewn below :—

LENGTH OF RESIDENCE IN COMMONWEALTH OF PERSONS WHO DIED IN 1920.

Length of Residence.	Male Deaths.	Female Deaths.	Total Deaths.	Length of Residence.	Male Deaths.	Female Deaths.	Total Deaths.
Born in the C'wealth ..	19,632	16,188	35,820	Resident 25 to 29 years	378	159	537
Resident under 1 year ..	149	81	230	,, 30 to 34 ,,	986	543	1,529
,, 1 year ..	77	46	123	,, 35 to 39 ,,	1,101	630	1,731
,, 2 years ..	26	10	36	,, 40 to 44 ,,	1,060	564	1,624
,, 3 ,, ..	30	18	48	,, 45 to 49 ,,	615	396	1,011
,, 4 ,, ..	27	18	45	,, 50 to 54 ,,	857	688	1,545
,, 5 ,, ..	45	38	83	,, 55 to 59 ,,	914	716	1,630
,, 6 ,, ..	81	69	150	,, 60 to 64 ,,	1,206	1,095	2,301
,, 7 ,, ..	147	122	269	,, 65 yrs. and over	1,521	1,699	3,220
,, 8 ,, ..	151	111	262	Length of residence not stated	2,053	604	2,657
,, 9 ,, ..	130	66	196				
,, 10 to 14 years ..	333	176	509				
,, 15 to 19 ,, ..	168	81	249				
,, 20 to 24 ,, ..	336	118	454	Total ..	32,053	24,236	56,289

12. **Birthplaces of Persons who Died in 1920.**—In the following table are shown the birthplaces of persons whose deaths were registered in 1920 :—

BIRTHPLACES OF PERSONS WHO DIED IN 1920, COMMONWEALTH.

Birthplace.	Males.	Females.	Total.
AUSTRALASIA—			
Commonwealth of Australia—			
New South Wales	7,398	6,115	13,513
Victoria ..	6,212	5,021	11,233
Queensland ..	2,164	1,836	4,000
South Australia	2,059	1,651	3,710
Western Australia	710	534	1,244
Tasmania ..	1,078	1,020	2,098
Northern Territory	10	10	20
Federal Territory	1	1	2
New Zealand ..	158	97	255
EUROPE—			
England ..	5,257	3,631	8,888
Wales	193	134	327
Scotland ..	1,525	1,040	2,565
Ireland ..	2,387	2,298	4,685
Isle of Man ..	8	10	18
Other European Brit. Possessions	38	20	58
Austria-Hungary	33	6	39
Belgium ..	10	5	15
Denmark ..	119	32	151
France	60	21	81
Germany ..	488	297	785
Greece ..	28	2	30
Italy	86	18	104
Netherlands ..	15	..	15
Norway ..	61	7	68
Portugal ..	7	..	7
Russia ..	107	17	124
Spain	8	4	12
Sweden ..	138	10	148
Switzerland ..	38	8	46
Other European Countries ..	7	..	7
ASIA—			
British India ..	77	24	101
Ceylon ..	13	1	14
Hong Kong ..	2	..	2
Straits Settlements	10	2	12
Other Asiatic Brit. Possessions ..	1	1	2
Afghanistan ..	1	..	1
Arabia	1	..	1
China	288	3	291
Japan	51	2	53
Java	9	..	9

Birthplace.	Males.	Females.	Total.
ASIA—*continued.*			
Philippine Islands	8	..	8
Syria	10	5	15
Other Asiatic Countries ..	37	2	39
AFRICA—			
Union of Sth. Africa	8	7	15
Mauritius ..	18	12	30
Other African Brit. Possessions ..	3	2	5
Egypt	3	2	5
Other African Countries ..	4	2	6
AMERICA—			
Barbadoes ..	1	..	1
Canada ..	52	14	66
Jamaica ..	7	1	8
Newfoundland ..	3	1	4
Other American Brit. Possessions	4	..	4
Brazil	1	1	2
Chile	2	1	3
Peru	1	..	1
United States of America ..	92	28	120
Other American Countries ..	28	10	38
POLYNESIA—			
Fiji	4	3	7
Friendly Islands	1	1	2
Papua	17	1	18
Other Polynesian Brit. Possessions	6	..	6
New Caledonia ..	6	1	7
New Hebrides ..	1	2	3
Samoa ..	..	1	1
Other Polynesian Islands ..	..	3	3
South Sea Islands (so described)	32	1	33
At Sea	87	63	150
Not stated ..	761	194	955
Total Deaths ..	32,053	24,236	56,289

13. Occupations of Male Persons who Died in 1920.—Information as to the occupations of the 32,053 males who died in the Commonwealth in 1920 is contained in the following statement :—

OCCUPATIONS OF MALES WHO DIED IN 1920, COMMONWEALTH.

Occupation.	No. of Deaths.
CLASS I.—PROFESSIONAL.	
General Government	146
Local Government	25
Defence	211
Law and order	209
Religion	90
Charity	3
Health	197
Literature	58
Science	10
Civil and mechanical engineering, architecture and surveying ..	94
Education	144
Fine arts	39
Music	43
Amusements	122
Total Professional ..	1,391
CLASS II.—DOMESTIC.	
Hotelkeepers and assistants ..	437
Others engaged in providing board and lodging	28
Coachmen and grooms	42
Hairdressers	81
Laundrymen	14
Others engaged in domestic occupations	137
Total Domestic	739
CLASS III.—COMMERCIAL.	
Banking and finance	96
Insurance and valuation ..	84
Land and household property ..	49
Property rights, n.e.i.	1
Books, publications and advertising	52
Musical instruments	1
Sports and games	2
Arms and ammunition	1
Machines, tools and implements ..	5
Carriages and vehicles	3
Harness and saddlery	5
Ships and boats	1
Building materials	11
Furniture	5
Paper and stationery	15
Textile fabrics	102
Dress	29
Fibrous materials	2
CLASS III.—COMMERCIAL—*cont.*	
Animal food	297
Vegetable food	82
Groceries and stimulants ..	163
Living animals	36
Leather, raw material	4
Wool and tallow	10
Hay, corn, &c.	16
Other vegetable matter ..	14
Wood and coal	32
Stone, clay, glass	6
Gold, silver and precious stones ..	2
Ironmongery	26
Merchants	93
Shopkeepers and assistants ..	230
Dealers and hawkers	104
Agents and brokers	124
Clerks, bookkeepers, &c. ..	683
Commercial travellers and salesmen	224
Others engaged in commercial pursuits	188
Speculators on chance events ..	14
Storage	1
Total Commercial	2,814
CLASS IV.—TRANSPORT AND COMMUNICATION.	
Railway traffic	475
Tramway traffic	65
Road traffic	614
Sea and river traffic	625
Postal service	84
Telegraph and telephone service ..	33
Messengers, &c.	14
Total Transport and Communication	1,910
CLASS V.—INDUSTRIAL.	
Books and publications ..	123
Musical instruments	16
Prints, pictures and art materials	4
Ornaments and small wares ..	21
Sports and games	1
Designs, medals, type and dies ..	3
Watches and clocks	38
Surgical instruments	2
Arms and ammunition ..	6
Engines, machines, tools, &c. ..	155
Carriages and vehicles	144
Harness, saddlery and leatherware	118

OCCUPATIONS OF MALES WHO DIED IN 1920, COMMONWEALTH—*continued.*

Occupation.	No. of Deaths.
CLASS V.—INDUSTRIAL—*continued.*	
Ships, boats and equipments ..	55
Furniture	122
Building materials	112
Chemicals and by-products ..	4
Textile fabrics	42
Dress	418
Fibrous materials	8
Animal food	22
Vegetable food	194
Groceries and stimulants ..	71
Animal matter	62
Workers in wood not elsewhere classed	24
Paper	4
Stone, clay, glass	90
Jewellery and precious stones ..	43
Metals, other than gold and silver	408
Gas, electric lighting, &c. ..	82
Buildings—	
Builders	110
Stonemasons	87
Bricklayers	108
Slaters	5
Carpenters	518
Plasterers	61
Painters and glaziers ..	207
Plumbers	94
Signwriters	7
Others	5
Roads, railways and earthworks	56
Disposal of the dead	9
Disposal of refuse	22
Other industrial workers—	
Manufacturers	53
Engineers, firemen	504
Contractors	205
Labourers, undefined ..	4,376
Others	30
Total Industrial	8,849

Occupation.	No. of Deaths.
CLASS VI.—AGRICULTURAL, PASTORAL, MINING PURSUITS, ETC.	
Agricultural	3,219
Pastoral	851
Dairy farming	54
Bees, fisheries and wild animals ..	123
Forestry	89
Water conservation and supply	23
Mines and quarries	1,427
Total Primary Producers ..	5,786
CLASS VII.—INDEFINITE.	
Independent means, having no specific occupation	501
Occupation unspecified ..	1,094
Total Indefinite	1,595
CLASS VIII.—DEPENDENTS.	
Dependent relatives (including persons under 20 years of age with no specified occupation) ..	8,880
Supported by voluntary and State contributions	89
Total Dependents ..	8,969
Total Male Deaths ..	32,053

14. Index of Mortality.—The death rates, those for age-groups on page 120 excepted, so far shewn are crude rates, *i.e.*, they simply shew the number of deaths per thousand of mean population, without taking the age constitution of that population into consideration. It is, however, a well-known fact that the death rate and age constitution of a people are intimately related; thus, other conditions being equal, the death rate of a country will be lower if it contains a large percentage of young people (not infants). In order to have a comparison of the mortality of various countries on a uniform basis, so far as age constitution is concerned, the International Statistical Institute in its 1895 session recommended the universal adoption of the population of Sweden in five age-groups, as ascertained at the Census of 1890, as the standard population by which this "Index of Mortality," as distinguished from the crude death rate,

should be ascertained. The calculation for 1920 is shewn below for each of the States and Territories and for the Commonwealth, the distribution of the mean population of 1920 into age-groups being in accordance with the distribution as found at the Census of 1911 :—

INDEX OF MORTALITY, STATES AND COMMONWEALTH, 1920.

Age-Group.	Mean Population, 1920, distributed according to Results of Census of 1911.	Number of Deaths, 1920.	No. of Deaths per 1,000 of Mean Population, 1920, in each Age-Group.	Age Distribution per 1,000 of Standard Population.	Index of Mortality.
NEW SOUTH WALES.					
Under 1 year	55,784	3,751	67.24	25.5	1.71
1 year and under 20	798,860	2,616	3.27	398.0	1.30
20 years „ 40	679,672	2,590	3.81	269.6	1.03
40 „ „ 60	366,959	3,975	10.83	192.3	2.08
60 „ and upwards ..	127,378	8,002	62.82	114.6	7.20
Total	2,028,653	20,934	10.32	1,000.0	13.32
VICTORIA.					
Under 1 year	35,595	2,670	75.01	25.5	1.91
1 year and under 20	579,109	1,936	3.34	398.0	1.33
20 years „ 40	476,234	1,918	4.03	269.6	1.09
40 „ „ 60	303,211	3,230	10.65	192.3	2.04
60 „ and upwards	110,348	7,078	64.14	114.6	7.35
Total	1,504,497	16,832	11.19	1,000.0	13.72
QUEENSLAND.					
Under 1 year	19,858	1,284	64.65	25.5	1.65
1 year and under 20	300,844	1,168	3.88	398.0	1.54
20 years „ 40	240,612	1,073	4.46	269.6	1.20
40 „ „ 60	130,457	1,583	12.13	192.3	2.33
60 „ and upwards ..	42,608	2,839	66.63	114.6	7.64
Total	734,379	7,947	10.82	1,000.0	14.36
SOUTH AUSTRALIA.					
Under 1 year	12,170	811	66.64	25.5	1.70
1 year and under 20	185,061	649	3.51	398.0	1.40
20 years „ 40	155,717	654	4.20	269.6	1.13
40 „ „ 60	86,397	798	9.24	192.3	1.78
60 „ and upwards	33,249	2,171	65.30	114.6	7.48
Total	472,594	5,083	10.76	1,000.0	13.49
WESTERN AUSTRALIA.					
Under 1 year	8,930	539	60.36	25.5	1.54
1 year and under 20	122,335	399	3.26	398.0	1.30
20 years „ 40	122,656	454	3.70	269.6	1.00
40 „ „ 60	66,712	932	13.97	192.3	2.69
60 „ and upwards	13,400	1,064	79.40	114.6	9.10
Total	334,033	3,388	10.14	1,000.0	15.63
TASMANIA.					
Under 1 year	6,118	376	61.46	25.5	1.57
1 year and under 20	92,675	223	2.41	398.0	0.96
20 years „ 40	66,575	272	4.09	269.6	1.10
40 „ „ 60	38,689	336	8.68	192.3	1.67
60 „ and upwards	13,603	829	60.94	114.6	6.98
Total	217,660	2,036	9.35	1,000.0	12.28
NORTHERN TERRITORY.					
Under 1 year	39	12	307.69	25.5	7.85
1 year and under 20	806	4	4.96	398.0	1.97
20 years „ 40	1,169	9	7.70	269.6	2.08
40 „ „ 60	1,970	24	12.18	192.3	2.34
60 „ and upwards	399	14	35.09	114.6	4.03
Total	4,383	63	14.37	1,000.0	18.27

INDEX OF MORTALITY, STATES AND COMMONWEALTH, 1920—*continued*.

Age-Group.	Mean Population, 1920, distributed according to Results of Census of 1911.	Number of Deaths, 1920.	No. of Deaths per 1,000 of Mean Population, 1920, in each Age-Group.	Age Distribution per 1,000 of Standard Population.	Index of Mortality.
FEDERAL TERRITORY.					
Under 1 year	50	1	20.00	25.5	0.51
1 year and under 20	892	1	1.12	398.0	0.45
20 years „ 40	668	2	2.99	269.6	0.81
40 „ „ 60	405	..	..	192.3	..
60 „ and upwards	160	2	12.50	114.6	1.43
Total	2,175	6	2.76	1,000.0	3.20
COMMONWEALTH.					
Under 1 year	138,544	9,444	68.17	25.5	1.74
1 year and under 20	2,080,582	6,996	3.36	398.0	1.34
20 years „ 40	1,743,303	6,972	3.99	269.6	1.08
40 „ „ 60	994,800	10,878	10.93	192.3	2.10
60 „ and upwards	341,145	21,999	64.49	114.6	7.39
Total	5,298,374	56,289	10.62	1,000.0	13.65

NOTE.—The small number of persons whose ages were not ascertained at the 1911 Census have been proportionately distributed among the various age-groups, and the same plan has been followed in regard to the persons who died in 1920, and whose ages were not stated in the certificates of death.

It will be seen that among the States in 1920 Western Australia had the highest index and Victoria the highest crude rate, while Tasmania had the lowest index and crude rate. The range of the indexes was above that of the crude rates, the latter vary ing from 9.35 per thousand in Tasmania to 11.19 per thousand in Victoria, a range of 1.84 per thousand, while the index varied from 12.28 per thousand in Tasmania to 15.63 per thousand in Western Australia, a range of 3.35 per thousand.

For purposes of comparison with previous years the index of mortality is shewn in the following table for each of the seven years 1914–1920:—

INDEX OF MORTALITY, STATES AND TERRITORIES, 1914-1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern Territory.	Federal Territory.	C'wealth.
1914 ..	12.72	14.11	12.70	13.03	12.56	12.11	20.35	5.17	13.18
1915 ..	13.24	13.54	14.30	13.09	12.79	13.04	21.62	7.15	13.47
1916 ..	13.48	14.28	14.37	14.45	14.15	13.43	22.63	3.63	13.99
1917 ..	12.45	12.85	12.64	12.65	12.93	11.78	13.42	6.70	12.63
1918 ..	12.86	13.23	13.94	12.53	13.69	11.70	15.40	2.37	13.07
1919 ..	16.48	15.51	15.97	14.59	15.50	13.29	17.42	8.76	15.75
1920 ..	13.32	13.72	14.36	13.49	15.63	12.28	18.27	3.20	13.65

15. Monthly Variations in Death Rates.—(i) *General Death Rates.* The annual death rates, corresponding to the number of deaths registered in each equalised month, have been calculated for the six years 1907–1912, and a series of diagrams shewing the results for each State and the Commonwealth as a whole appears on page 119 of this issue, distinguishing the rates for males, females, and persons. The curves shewing the male and female rates exhibit in each State a fairly parallel course, irregularities

being, however, more strongly marked in the case of the male curve. The minimum rates in New South Wales and Queensland fall within the autumn months, from March to May, while in Victoria, South Australia, Western Australia, and Tasmania they fall in the spring months, October and November. In no case is there, however, a very great difference between the rates in spring and in autumn, the figures for the Commonwealth being 10.19 per thousand in March, and 10.34 per thousand in October. The maximum rates in New South Wales, Victoria, and Tasmania are experienced in August, and in Queensland in September, with the rates for December and January as secondary maxima. In South Australia the maximum rate of 11.33 per thousand falls in January, the rate for August standing next with 10.80 per thousand. In Western Australia the maximum rate is found in May.

(ii) *Infantile Death Rate.* A similar series of diagrams, shewing the monthly variations in the infantile death rates, appears on page 111. With the exception of Western Australia, where the maximum occurs in May, the maxima are found in the summer months in every State. The rates gradually decrease from January to March, shewing in several States a slight increase in April, with a further diminution until July. In July and August the rates rise to some extent, to fall again until October or November. From that time a rapid rise takes place, until the maximum is reached in December or January. Tasmania, where the seasons are rather later than in the continental States, shows two distinct minima in May and November, with a summer maximum in February, and a fairly high rate in September. In Western Australia the rates are moderately high in December and January, and drop until March, to rise rapidly in April and May, when the maximum is reached. From May to September there is a gradual decrease, with a quick rise from the latter month until December.

16. **Causes of Death.**—(i) Information regarding the changes in the classification of causes of death will be found in previous editions of this Year Book (*e.g.*, Year Book No. 6, pages 222 and 223). The statement will suffice, therefore, that the classification adopted by the Commonwealth Bureau of Census and Statistics is that of the International Institute of Statistics, as amended by the Committee of Revision which met in 1909. The detailed classification groups causes of death under 189 different headings in fourteen categories, as follows :—

i. General Diseases.
ii. Diseases of the Nervous System and Organs of Special Sense.
iii. Diseases of the Circulatory System.
iv. Diseases of the Respiratory System.
v. Diseases of the Digestive System.
vi. Diseases of the Genito-urinary System and Adnexa.
vii. Puerperal Condition.
viii. Diseases of the Skin and Cellular Tissue.
ix. Diseases of the Organs of Locomotion.
x. Malformations.
xi. Infancy.
xii. Old Age.
xiii. Violence.
xiv. Ill-defined Diseases.

(ii) *Compilation of Vital Statistics for 1907 and Subsequent Years in Commonwealth Bureau.* The vital statistics of the Commonwealth from the year 1907 onward have been tabulated according to this classification in the Commonwealth Bureau, and the system is being employed in all the State offices in the preparation of their monthly and quarterly bulletins of vital statistics.

(iii) *Classification of Causes of Death, 1914 to 1920, according to Abridged International Classification.* An abridged classification, which enumerates thirty-eight diseases and groups of diseases according to the revised classification, is in use in many European and American States, while the Commonwealth statistics have been compiled on the detailed classification of 189 headings. A table has been compiled showing the causes of death according to the abridged classification, so that the results may be compared with those of countries which use the abridged index.

The compilations for the years 1914 to 1920 will be found in full in "Bulletins Nos. 2 to 38 of Population and Vital Statistics"; here it will suffice to give the abridged classification under thirty-eight headings for the year 1920.

CAUSES OF DEATH, COMMONWEALTH, 1920.

MALES.

Cause.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	Nor. Ter.	Fed. Ter.	C'wlth.
1 Typhoid Fever ..	75	34	40	10	18	5	..	..	182
2 Typhus	..	..	..	..	..	..	..	..	..
3 Malaria	1	1	10	..	3	..	..	..	15
4 Small-pox	..	..	..	..	..	..	..	..	..
5 Measles	89	112	21	8	8	11	..	..	249
6 Scarlet Fever ..	12	12	1	12	2	..	..	..	39
7 Whooping Cough ..	128	70	22	19	..	3	2	..	244
8 Diphtheria and Croup	131	134	67	51	27	13	..	..	423
9 Influenza	55	12	36	6	2	5	..	..	116
9A Pneumonic Influenza ..	45	20	44	9	13	1	..	..	132
10 Asiatic Cholera ..	..	..	..	..	..	..	..	..	..
11 Cholera Nostras ..	..	..	..	1	..	..	..	..	1
12 Other Epidemic Diseases	31	15	14	5	6	..	1	..	72
13 Tuberculosis of the Lungs	688	531	216	174	193	58	13	..	1,873
14 Tuberculosis of the Meninges	42	48	3	12	7	11	..	..	123
15 Other forms of Tuberculosis	52	66	15	15	9	6	..	..	163
16 Cancer and other Malignant Tumours ..	891	678	312	223	156	78	3	1	2,342
17 Simple Meningitis ..	134	100	61	39	21	9	..	..	364
18 Congestion, Hæmorrhage and Softening of Brain	508	354	174	160	59	42	..	1	1,298
19 Organic Diseases of the Heart	1,095	890	490	290	184	124	4	..	3,077
20 Acute Bronchitis ..	112	45	23	18	9	4	..	..	211
21 Chronic Bronchitis ..	187	183	92	44	17	8	1	..	532
22 Pneumonia	502	373	154	98	62	60	1	..	1,250
23 Other Diseases of the Respiratory System (Tuberculosis exceptd.)	500	517	204	101	88	45	..	..	1,455
24 Diseases of the Stomach (Cancer excepted) ..	71	75	51	17	9	8	..	..	231
25 Diarrhoea and Enteritis (children under 2 years only)	689	379	300	166	138	48	..	..	1,720
26 Appendicitis & Typhlitis	103	61	45	22	10	10	..	..	251
27 Hernia, Intestinal Obstructions ..	111	87	55	22	30	6	..	..	311
28 Cirrhosis of the Liver	97	49	44	20	22	1	1	..	234
29 Nephritis and Bright's Disease	496	375	240	125	71	48	..	..	1,355
30 Non-cancerous Tumours and other Diseases of Female Genital Organs	..	..	..	..	..	..	..	..	..
31 Puerperal Septicæmia (Puerperal Fever, Puerperal Peritonitis, Puerperal Phlebitis)	..	..	..	..	..	..	..	..	..
32 Other Puerperal Accidents of Pregnancy and Confinement ..	..	..	..	..	..	..	..	..	..
33 Congenital Debility and Malformations ..	924	692	308	211	137	78	3	1	2,354
34 Senile Debility ..	963	715	333	226	183	84	1	..	2,505
35 Violence	787	552	378	185	186	63	7	1	2,159
36 Suicide	202	116	113	25	41	15	4	..	516
37 Other Diseases ..	2,185	1,622	905	442	385	196	5	..	5,740
38 Unspecified or Ill-defined Diseases	182	141	53	58	65	15	2	..	516
Total—Males ..	12,088	9,059	4,824	2,814	2,161	1,064	48	4	32,053

CAUSES OF DEATH, COMMONWEALTH, 1928.

FEMALES.

Cause.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	Nor. Ter.	Fed. Ter.	C'wlth.
1 Typhoid Fever ..	51	19	32	7	10	11	..	..	130
2 Typhus	..	..	..	..	..	..	..	..	..
3 Malaria	1	..	2	..	..	..	1	..	4
4 Small-pox	..	..	..	..	..	..	..	..	..
5 Measles	82	100	33	6	8	4	..	..	233
6 Scarlet Fever ..	8	25	5	11	2	..	..	..	51
7 Whooping Cough ..	165	104	25	20	..	3	..	..	317
8 Diphtheria and Croup	119	147	61	36	23	20	..	..	406
9 Influenza	59	13	26	2	8	6	..	..	114
9A Pneumonic Influenza ..	38	25	14	2	5	2	..	..	86
10 Asiatic Cholera ..	..	..	..	..	..	..	..	..	..
11 Cholera Nostras ..	..	..	..	..	..	..	..	..	..
12 Other Epidemic Diseases	17	10	15	6	4	..	..	..	52
13 Tuberculosis of the Lungs	407	432	127	147	63	48	1	..	1,225
14 Tuberculosis of the Meninges	32	32	7	13	1	6	..	..	91
15 Other forms of Tuberculosis	54	48	5	12	7	6	..	..	132
16 Cancer and other Malignant Tumours ..	795	690	276	217	113	76	2	..	2,169
17 Simple Meningitis ..	79	71	29	28	17	8	..	..	232
18 Congestion, Hæmorrhage and Softening of Brain	399	440	129	118	59	52	..	..	1,197
19 Organic Diseases of the Heart	777	747	306	264	87	110	2	..	2,293
20 Acute Bronchitis ..	105	35	23	14	3	6	1	..	187
21 Chronic Bronchitis ..	168	156	53	32	6	15	..	..	430
22 Pneumonia	311	281	104	75	33	45	..	..	849
23 Other Diseases of the Respiratory System (Tuberculosis exeptd.)	447	351	105	80	47	42	..	..	1,072
24 Diseases of the Stomach (Cancer excepted) ..	65	78	40	11	10	7	..	1	212
25 Diarrhœa and Enteritis (children under 2 yrs. only)	564	307	197	128	112	39	..	..	1,347
26 Appendicitis & Typhlitis	56	31	17	12	9	6	..	..	131
27 Hernia, Intestinal Obstructions ..	76	84	31	13	16	10	..	..	230
28 Cirrhosis of the Liver	40	37	16	4	8	1	..	..	106
29 Nephritis and Bright's Disease	292	339	163	67	45	25	..	..	931
30 Non-cancerous Tumours and other Diseases of the Female Genital Organs	65	41	19	15	9	5	..	..	154
31 Puerperal Septicæmia (Puerperal Fever, Puerperal Peritonitis, Puerperal Phlebitis) ..	101	85	28	19	14	3	..	..	250
32 Other Puerperal Accidents of Pregnancy and Confinement ..	161	114	57	39	37	25	..	..	433
33 Congenital Debility and Malformations ..	642	494	226	163	82	82	3	..	1,692
34 Senile Debility ..	705	807	195	244	80	100	..	..	2,131
35 Violence	237	164	92	64	51	24	..	..	632
36 Suicide	53	26	25	4	6	5	1	..	120
37 Other Diseases ..	1,585	1,353	613	350	230	174	2	1	4,308
38 Unspecified or Ill-defined Diseases	90	87	27	46	22	15	2	..	289
Total—Females ..	8,846	7,773	3,123	2,269	1,227	981	15	2	24,236

CAUSES OF DEATH, COMMONWEALTH, 1920.

TOTAL—MALES AND FEMALES.

Cause.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	Nor. Ter.	Fed. Ter.	C'wlth.
1 Typhoid Fever ..	126	53	72	17	28	16	..	..	312
2 Typhus	..	..	..	..	..	..	..	..	..
3 Malaria	2	1	12	..	3	..	1	..	19
4 Small-pox	..	..	..	..	..	..	..	..	..
5 Measles	171	212	54	14	16	15	..	..	482
6 Scarlet Fever ..	20	37	6	23	4	..	..	..	90
7 Whooping Cough ..	293	174	47	39	..	6	2	..	561
8 Diphtheria and Croup	250	281	128	87	50	33	..	..	829
9 Influenza	114	25	62	8	10	11	..	..	230
9A Pneumonic Influenza	83	45	58	11	18	3	..	..	218
10 Asiatic Cholera ..	..	..	..	..	..	..	..	..	..
11 Cholera Nostras ..	..	..	..	1	..	..	..	..	1
12 Other Epidemic Diseases	48	25	20	11	10	..	1	..	124
13 Tuberculosis of the Lungs	1,095	963	343	321	256	106	14	..	3,098
14 Tuberculosis of the Meninges	74	80	10	25	8	17	..	..	214
15 Other forms of Tuberculosis	106	114	20	27	16	12	..	..	295
16 Cancer and other Malignant Tumours ..	1,686	1,308	588	440	269	154	5	1	4,511
17 Simple Meningitis ..	213	171	90	67	38	17	..	..	596
18 Congestion, Hæmorrhage and Softening of the Brain	907	794	303	278	118	94	..	1	2,495
19 Organic Diseases of Heart	1,872	1,637	796	554	271	234	6	..	5,370
20 Acute Bronchitis ..	217	80	46	32	12	10	1	..	398
21 Chronic Bronchitis ..	355	339	145	76	23	23	1	..	962
22 Pneumonia	813	654	258	173	95	105	1	..	2,099
23 Other Diseases of the Respiratory System (Phthisis excepted)..	947	868	309	181	135	87	..	..	2,527
24 Diseases of the Stomach (Cancer excepted) ..	136	153	91	28	19	15	..	1	443
25 Diarrhœa and Enteritis (children under 2 years only)	1,253	686	497	294	250	87	..	..	3,067
26 Appendicitis & Typhlitis	159	92	62	34	19	16	..	..	382
27 Hernia, Intestinal Obstructions ..	187	171	86	35	46	16	..	..	541
28 Cirrhosis of the Liver..	137	86	60	24	30	2	1	..	340
29 Nephritis and Bright's Disease	788	714	403	192	116	73	..	..	2,286
30 Non-cancerous Tumours and other Diseases of the Female Genital Organs	65	41	19	15	9	5	..	..	154
31 Puerperal Septicæmia (Puerperal Fever, Puerperal Peritonitis, Puerperal Phlebitis) ..	101	85	28	19	14	3	..	..	250
32 Other Puerperal Accidents of Pregnancy and Confinement ..	161	114	57	39	37	25	..	..	433
33 Congenital Debility and Malformations ..	1,566	1,186	534	374	219	160	6	1	4,046
34 Senile Debility ..	1,668	1,522	528	470	263	184	1	..	4,636
35 Violence	1,094	716	470	249	237	67	7	1	2,791
36 Suicide	255	142	138	29	47	20	5	..	636
37 Other Diseases ..	3,770	2,975	1,518	792	615	370	7	1	10,048
38 Unspecified or Ill-defined Diseases	272	228	80	104	87	30	4	..	805
Total—Males and Females	20,934	16,832	7,947	5,083	3,388	2,036	63	6	56,289

The classification for the years 1914 to 1920 is shewn for the Commonwealth in the following table, and for purposes of comparison the figures for the year 1920 have been repeated from the preceding table. Male and female deaths for 1914 are shewn on pages 188 and 189 of the ninth issue, for 1915 on pages 198 and 199 of the tenth issue, for 1917 on pages 204 and 205 of the eleventh issue, for 1918 on pages 197 and 198 of the twelfth issue, and for 1919 on pages 188 and 189 of the thirteenth issue of this book.

CAUSES OF DEATH, COMMONWEALTH, 1914 TO 1920.

MALES AND FEMALES.

Cause.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
1 Typhoid Fever	604	561	529	284	251	272	312
2 Typhus	..	..	..	..	..	..	..
3 Malaria	22	30	50	49	41	34	19
4 Small-pox	3	1	1	..	..	..	..
5 Measles	155	439	211	72	82	51	482
6 Scarlet Fever	29	104	134	64	81	69	90
7 Whooping Cough	320	185	426	282	234	211	561
8 Diphtheria and Croup	716	703	893	646	645	581	829
9 Influenza	381	380	278	168	848	11,552	230
9A Pneumonic Influenza	..	..	..	..	..	..	218
10 Asiatic Cholera	..	..	..	..	..	..	..
11 Cholera Nostras	2	2	4	1	2	1	1
12 Other Epidemic Diseases	176	205	249	144	174	157	124
13 Tuberculosis of the Lungs	3,111	3,064	3,198	2,883	3,035	3,479	3,008
14 Tuberculosis of the Meninges	207	218	215	206	208	188	214
15 Other forms of Tuberculosis	256	278	310	275	292	281	295
16 Cancer and other Mal. Tumours	3,675	3,702	3,979	4,022	4,246	4,421	4,511
17 Simple Meningitis	812	1,209	1,201	690	583	481	596
18 Congestion, Hæmorrhage and Softening of the Brain	2,204	2,118	2,230	2,214	2,297	2,467	2,495
19 Organic Diseases of the Heart	4,836	4,370	4,509	3,852	3,976	5,864	5,379
20 Acute Bronchitis	389	489	512	321	399	420	393
21 Chronic Bronchitis	959	913	1,057	829	1,121	1,047	962
22 Pneumonia	1,992	2,225	2,220	1,896	2,141	2,856	2,099
23 Other Diseases of the Respiratory System (Tuberculosis excepted)	1,866	2,212	2,243	1,941	2,199	2,418	2,527
24 Diseases of the Stomach (Cancer excepted)	368	351	253	394	409	478	443
25 Diarrhœa and Enteritis (Children under two years only)	3,506	2,815	3,018	1,719	1,732	2,520	3,067
26 Appendicitis and Typhlitis	374	356	321	321	371	352	382
27 Hernia, Intestinal Obstructions	460	488	501	449	543	580	541
28 Cirrhosis of the Liver	380	376	309	335	297	315	349
29 Nephritis and Bright's Disease	2,127	2,274	2,329	2,203	2,144	2,221	2,286
30 Non-cancerous Tumours and other Diseases of the Female Genital Organs	138	139	153	148	169	182	154
31 Puerperal Septicæmia (Puerperal Fever, Peritonitis, Phlebitis)	215	182	282	250	183	166	250
32 Other Puerperal Accidents of Pregnancy and Confinement	419	394	411	482	409	404	433
33 Congenital Debility, &c.	3,660	3,993	3,826	3,423	3,454	3,885	4,046
34 Senile Debility	4,180	4,686	4,980	4,770	4,664	4,840	4,636
35 Violence	3,121	2,851	2,712	2,656	2,641	2,799	2,791
36 Suicide	643	658	577	502	498	546	636
37 Other Diseases	8,670	9,090	9,433	8,871	9,226	9,390	10,048
38 Unspecified or Ill-defined Diseases	644	717	633	667	664	707	805
Total	51,720	52,782	54,197	48,029	50,249	65,930	56,289

17. **Certification of Deaths.**—Information was obtained in 1920 as to the persons by whom the 56,289 deaths which occurred in the Commonwealth were certified. The result of the enquiry shews that approximately 90.3 per cent. (in 1914, 88.8 per cent.; in 1915, 89.3 per cent.; in 1916, 89.5 per cent.; in 1917, 89.3 per cent.; in 1918, 89.9 per cent.; and in 1919, 91.5 per cent.) were certified by medical practitioners, and 9.4 per cent. (in 1914, 10.7 per cent.; in 1915, 10.2 per cent.; in 1916, 9.9 per cent.; in 1917, 10.3 per cent.; in 1918, 9.8 per cent.; and in 1919, 8.2 per cent.) by coroners after inquests or magisterial enquiries, while in 0.3 per cent. (in 1914, 0.5 per cent.; in 1915, 0.5 per cent.; in 1916, 0.6 per cent.; in 1917, 0.4 per cent.; in 1918, 0.3 per cent.; and in 1919, 0.3 per cent.) of the cases there was either no certificate given

or particulars were not forthcoming. The results are shewn in detail in Bulletin No. 38; a short summary will therefore suffice here:—

CERTIFICATION OF DEATHS, COMMONWEALTH, 1920.

Death Certified by—	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wlth.
Medical practitioner	18,912	14,863	7,537	4,557	3,037	1,882	33	5	50,826
Coroner ..	2,008	1,967	277	526	324	147	30	1	5,280
Not certified or not stated ..	14	2	133	..	27	7	..	..	183
Total Deaths	20,934	16,832	7,947	5,083	3,388	2,036	63	6	56,289

Of the cases certified by coroners, violent deaths numbered 2,540, senile decay 353, organic heart disease 463, ill-defined causes 358, congenital debility 157, cerebral hæmorrhage and apoplexy 102, pneumonia 92, Bright's disease 84, diarrhœa and enteritis 131, pulmonary tuberculosis 76, diseases of arteries, aneurisms, &c., 40, broncho-pneumonia 94, acute and chronic alcoholism 34, puerperal diseases 51, and infantile convulsions 24; a total of 4,599 out of 5,280.

Of uncertified causes of death, violent deaths numbered 31, congenital debility 16, senile debility 33, ill-defined causes 25, influenza 18, and heart disease 9; a total of 132 out of 183.

18. **Deaths from Special Causes.**—The table on p. 132 furnishes comparisons for the last seven years only, and comparisons will, therefore, generally be restricted to that period.

(i) *Typhoid Fever.* Of the 312 deaths recorded in 1920, 126 occurred in New South Wales, 53 in Victoria, 72 in Queensland, 17 in South Australia, 28 in Western Australia, and 16 in Tasmania. There has been a marked diminution since 1916.

(ii) *Typhus.* No deaths from typhus have been registered from 1914 to 1920.

(iii) *Malaria.* Deaths from malarial diseases are practically confined to the tropical districts of Northern Queensland and Western Australia, and to the Northern Territory, 12 out of 19 deaths registered in 1920 having occurred in Queensland and 3 in Western Australia.

(iv) *Small-pox.* The number of deaths from small-pox in Australia is very small, five deaths only resulting in the seven years under review.

(v) *Measles.* No serious epidemic of measles has occurred for several years; the deaths in 1914 totalling 155. The number increased to 439 in 1915 but in 1919 was only 51. In 1920, 482 deaths were ascribed to measles, of which 171 were in New South Wales, 212 in Victoria, and 54 in Queensland.

(vi) *Scarlet Fever.* The mortality from this source is very light, the average of deaths from 1914 to 1920 being less than 90 per annum.

(vii) *Whooping Cough.* In 1920 the number of deaths was 561, the highest number registered in the period 1914 to 1920. Of these deaths, 293 occurred in New South Wales, 174 in Victoria, 47 in Queensland, 39 in South Australia, 2 in Northern Territory, and 6 in Tasmania.

(viii) *Diphtheria and Croup.* Deaths from this cause reached a figure of 716 in 1914 and 703 in 1915, but increased to 893 in 1916, and fell to 581 in 1919. The number for 1920 was 829, of which 250 were registered in New South Wales, 281 in Victoria, 128 in Queensland, 87 in South Australia, 50 in Western Australia, and 33 in Tasmania. Diphtheria was the cause of death in 805 cases and croup in 24 cases.

(ix) *Influenza.* In 1914, 331 deaths were registered from this cause; in 1915, 389; in 1916, 278; and in 1917, 168. In 1918 there was rather a serious outbreak, the deaths rising to 848. In 1919 Australia experienced the full effect of the world-wide epidemic, the number of deaths reaching the unprecedented figure of 11,552, of which almost exactly one-half occurred in New South Wales. The deaths in States were as follows:—Ordinary influenza—New South Wales, 568; Victoria, 345 Queensland, 247

South Australia, 47; Western Australia, 42; Tasmania, 29; and Northern Territory, 11; total, 1,289. Pneumonic influenza—New South Wales, 5,215; Victoria, 3,110; Queensland, 799; South Australia, 471; Western Australia, 470; Tasmania, 196; Northern Territory, 1; and Federal Territory, 1; total, 10,263.

A special feature of the epidemic was that the deaths occurred principally at the younger and middle ages, and not at the older ages as in ordinary influenza. This is *illustrated in the following table:—*

DEATHS FROM INFLUENZA, COMMONWEALTH, 1919.

Age Groups.	Ordinary Influenza.		Pneumonic Influenza.	
	Number.	Percentage on Total Deaths.	Number.	Percentage on Total Deaths.
Deaths under 5 years	144	11.17	348	3.39
" 5-19 "	102	7.91	665	6.48
" 20-39 "	411	31.89	5,535	53.93
" 40-59 "	350	27.15	2,889	28.15
" 60 years and above ..	282	21.88	826	8.05
Total	1,289	100.00	10,263	100.00

During 1920, 230 deaths were due to ordinary influenza and 218 to pneumonic influenza.

(x) *Asiatic Cholera.* No cases of Asiatic cholera have ever occurred in the Commonwealth.

(xi) *Cholera Nostras.* Isolated cases only of choleriform diarrhœa occurred in each of the seven years. One death from this cause was registered during 1917, and 2 in 1918.

(xii) *Other Epidemic Diseases.* The number of deaths registered under this heading was 176 in 1914, 205 in 1915, 249 in 1916, 144 in 1917, 174 in 1918, 157 in 1919, and 124 in 1920. The list in 1920 includes the following diseases:—Dysentery 65, erysipelas 52, leprosy 3, other epidemic diseases 4. There have been no deaths from plague in the Commonwealth since 1912.

(xiii) *Tuberculosis of the Lungs and Acute Miliary Tuberculosis.* The deaths in 1920 numbered 3,098, viz., 1,873 males and 1,225 females. The figures for the years 1914 to 1919 were 3,111, 3,064, 3,198, 2,883, 3,035, and 3,365 respectively. Of the deaths in 1920, 1,095 occurred in New South Wales, 963 in Victoria, 343 in Queensland, 321 in South Australia, 256 in Western Australia, 106 in Tasmania, and 14 in the Northern Territory.

(xiiia) *Tuberculosis of the Respiratory System.* Of the various forms of tuberculosis prevalent in the Commonwealth, that which has attracted the most attention and has been the subject of the widest comment is phthisis, or tuberculosis of the lungs. The intimate relation, however, between tuberculosis of the lungs and that of other parts of the respiratory system renders it desirable that all forms of tuberculosis of the respiratory system should be brought under one head for various investigations concerning the age incidence and duration of this disease.

In the matter of the age incidence of death from tuberculosis of the respiratory system, diagrams were given in Year Books 2, 3, and 4, pp. 239, 217, and 206 respectively, shewing the frequency of deaths at successive ages in England and Wales during 1906 (Fig. 1) and in the Commonwealth during 1907 (Fig. 2). These were superseded by a fuller reference based on later results in Year Book No. 5, pp. 230, &c. The results given depended upon intercensal estimates of population, and these having been adjusted to agree with the Census of 3rd April, 1911, some slight amendments of the figures in previous issues were made in Year Book No. 5.

(xiv) *Tuberculosis of the Meninges.* The number of deaths ascribed to this cause has varied very slightly during the last seven years. The greatest number of deaths, viz., 215, occurred in 1916, and the least number, viz., 183, in 1919. In 1920, 214 deaths occurred.

(xv) *Other Forms of Tuberculosis.* The deaths in 1920 include the following forms of tuberculosis:—Abdominal tuberculosis, 127; Pott's disease, 47; white swellings, 26; tuberculosis of other organs, 53; and disseminated tuberculosis, 42.

(xva) *All Forms of Tuberculosis.* A complete tabulation of all the different tubercular diseases from which deaths occurred in 1920 will be found in Bulletin No. 38 of Population and Vital Statistics. Here it will suffice to shew a few of the features of the tabulation mentioned. The total number of deaths due to tubercular diseases was 3,607, viz., 2,159 males and 1,448 females. The following table shews the ages of these 3,607 persons:—

AGES OF PERSONS WHO DIED FROM TUBERCULAR DISEASES, COMMONWEALTH, 1920.

Ages.	*Male.*	*Female.*	*Total.*	*Ages.*	*Male.*	*Female.*	*Total.*
Under 5 years ..	110	70	180	55 years and under 60	173	62	235
5 years and under 10	46	32	78	60 ,, ,, 65	133	49	182
10 ,, ,, 15	32	35	67	65 ,, ,, 70	53	24	77
15 ,, ,, 20	68	102	170	70 ,, ,, 75	21	15	36
20 ,, ,, 25	148	197	345	75 ,, ,, 80	16	4	20
25 ,, ,, 30	228	220	448	80 ,, over ..	10	1	11
30 ,, ,, 35	242	180	422				
35 ,, ,, 40	234	160	394	Unspecified ..	4	1	5
40 ,, ,, 45	221	128	349				
45 ,, ,, 50	224	92	316				
50 ,, ,, 55	196	76	272	Total Deaths ..	2,159	1,448	3,607

A tabulation has been made of the occupations of males dying from tubercular diseases during 1920. A summary is here given:—

OCCUPATIONS OF MALES WHO DIED FROM TUBERCULAR DISEASES, COMMONWEALTH, 1920.

Occupation.	No. of Deaths.	Occupation.	No. of Deaths.
Professional class	136	Agricultural class	136
Domestic class	78	Pastoral class	38
Mercantile class	350	Working in mines and quarries ..	191
Engaged in transport and communication	182	Other primary producers ..	12
Manufacturing class	239	Independent means	8
Engaged in building and construction	100	Dependents	231
Other industrial workers ..	400	Occupation not stated	58
		Total Male Deaths ..	2,159

The length of residence in the Commonwealth of persons who died from tubercular diseases has been tabulated for the year 1920 for all the Commonwealth States, with the following results:—

LENGTH OF RESIDENCE IN COMMONWEALTH OF PERSONS WHO DIED FROM TUBERCULAR DISEASES, 1920.

Length of Residence in Commonwealth.	Male.	Fem.	Total.	*Length of Residence in Commonwealth.*	Male.	Fem.	Total.
Born in Commonwealth ..	1,530	1,241	2,771	Resident 10 years & under 15	56	16	72
Resident under 1 year ..	16	10	26	,, 15 ,, ,, 20	22	10	32
,, 1 year	14	8	22	,, 20 ,, over ..	289	84	373
,, 2 years ..	6	3	9	Length of residence not stated	125	24	149
,, 3 ,, ...	2	2	4				
,, 4 ,, ...	6	5	11				
,, 5 ,, and under 10	93	45	138	Total Deaths ..	2,159	1,448	3,607

From the preceding table and the table on page 122, it will be seen that, among persons who had lived less than 5 years in Australia, 482 deaths occurred, and of these 72, or 14.9 per cent, were due to tubercular diseases.

In order to shew the prevalence of tuberculosis in the several States, the death rates from tubercular diseases are given in the following table, together with the percentage which deaths from tuberculosis bear to the total number of deaths registered :—

DEATH RATES(a) FROM TUBERCULOSIS AND PERCENTAGE ON TOTAL DEATHS, COMMONWEALTH, 1920.

State.	Death Rates (a) from Tuberculosis.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	0.76	0.49	0.63	6.47	5.57	6.09
Victoria	0.87	0.67	0.77	7.12	6.59	6.87
Queensland	0.61	0.40	0.51	4.85	4.45	4.69
South Australia	0.89	0.70	0.79	7.14	7.58	7.34
Western Australia	1.17	0.46	0.84	9.67	5.79	8.26
Tasmania	0.66	0.57	0.62	7.11	6.12	6.63
Northern Territory	3.92	0.94	3.20	27.08	6.67	22.22
Federal Territory	..	..	..	..	..	..
Commonwealth	0.81	0.55	0.68	6.74	5.97	6.41

(a) Number of deaths from tuberculosis per 1,000 of mean population.

The following table, which gives for a number of countries the death rates from pulmonary and miliary tuberculosis per 1,000 persons living, shews that the Commonwealth occupies a very enviable position when compared with most European countries:—

PULMONARY AND MILIARY TUBERCULOSIS—DEATHS PER 1,000 PERSONS LIVING.

Country.	Year.	Death Rate.	Country.	Year.	Death Rate.
Rumania	1914	0.40	United States (Registration Area)	1915	1.28
Denmark	1914	0.44	Prussia	1913	1.37
South Africa, Union of (Whites)	1917	0.44	Spain	1919	1.43
New Zealand	1919	0.53	Switzerland	1918	1.46
Australia	**1920**	**0.58**	Jamaica	1915	1.47
Ontario (Canada)	1919	0.69	Japan	1916	1.56
Ceylon	1919	0.75	Norway	1917	1.64
Scotland	1919	0.88	Sweden	1915	1.66
Belgium	1912	0.93	France	1911	1.80
England and Wales	1919	0.97	Ireland	1919	1.92
United Kingdom	1919	1.06	Chile	1914	2.55
Netherlands	1915	1.10	Finland	1914	2.57
Italy	1917	1.18	Austria	1912	2.83
Quebec (Canada)	1917	1.20	Serbia	1911	3.24
Germany	1913	1.24	Hungary	1912	3.49

(xvi) *Cancer and other Malignant Tumours.* The number of deaths from cancer has increased continuously to 4,511 in 1920. Of the deaths registered in 1920, 2,342 were those of males, viz., 891 in New South Wales, 678 in Victoria, 312 in Queensland, 223 in South Australia, 156 in Western Australia, 78 in Tasmania, 3 in the Northern Territory, and 1 in the Federal Territory; while 2,169 were those of females, viz., 795 in New South Wales, 690 in Victoria, 276 in Queensland,

217 in South Australia, 113 in Western Australia, 76 in Tasmania, and two in the Northern Territory. Bulletin No. 38 contains a complete tabulation of the various types of cancer and of the seat of the disease, of which the following is a summary :—

DEATHS FROM CANCER, COMMONWEALTH, 1920.

Seat of Disease.	Male.	Female.	Total.
Cancer, &c., of the buccal cavity ..	322	24	346
,, ,, the stomach and liver ..	947	608	1,555
,, ,, the peritoneum, the intestines, and the rectum ..	319	309	628
,, ,, the female genital organs ..	..	448	448
,, ,, the breast ..	..	310	310
,, ,, *the skin* ..	94	72	166
,, ,, other organs ..	660	398	1,058
Total Deaths ..	2,342	2,169	4,511

Of these deaths, 1,012 were described as cancer, 2,344 as carcinoma, 197 as epithelioma, 533 as "malignant disease," 32 as "malignant tumour," 34 as neoplasm, 68 as "rodent ulcer," 285 as sarcoma, and 16 as scirrhus.

The ages of the 4,511 persons who died from cancer in 1920 are shewn in the following table, from which it will be seen that while the ages below 35 are not by any means immune from the disease, the great majority of deaths occurred at ages from 35 upwards, the maximum being found in the age group 60 to 65 :—

AGES OF PERSONS WHO DIED FROM CANCER, COMMONWEALTH, 1920.

Ages.	Male.	Female.	Total.	Ages.	Male.	Female.	Total.
Under 15 years ..	25	19	44	55 years and under 60	344	292	636
15 years and under 20	6	8	14	60 ,, ,, 65	425	295	720
20 ,, ,, 25	6	8	14	65 ,, ,, 70	355	270	625
25 ,, ,, 30	14	15	29	70 ,, ,, 75	280	208	488
30 ,, ,, 35	23	48	71	75 ,, ,, 80	206	192	398
35 ,, ,, 40	45	82	127	80 ,, ,, 85	95	93	188
40 ,, ,, 45	68	132	200	85 years and over..	63	66	129
45 ,, ,, 50	141	198	339	Unspecified ..	2	1	3
50 ,, ,, 55	244	242	486				
				Total Deaths ..	2,342	2,169	4,511

A tabulation, of which the following is a summary, has been made of the occupations of males who died from cancer :—

OCCUPATIONS OF MALES WHO DIED FROM CANCER, COMMONWEALTH, 1920.

Occupation.	No. of Deaths.	Occupation.	No. of Deaths.
Professional class ..	116	Agricultural class ..	377
Domestic class ..	64	Pastoral class ..	101
Mercantile class ..	303	Working in mines and quarries	113
Engaged in transport and communication ..	182	Other primary producers ..	16
Manufacturing class ..	259	Independent means ..	45
Engaged in building and construction ..	133	Dependents ..	37
Other industrial workers ..	509	Occupation not stated ..	87
		Total Male Deaths ..	2,342

As the following tables shew, the total death rates from cancer are below those for tubercular diseases in Western Australia only. The male death rates from cancer were, in 1920, in excess of those from tuberculosis in all the States except Western Australia, while the female death rates were in excess in all the States. While the death rates from tuberculosis have a general tendency to decrease, the death rates from cancer have, on the contrary, shewn an increase in nearly every recent year. In 1914, while the death rate from tuberculosis decreased from 0.79 to 0.73 per thousand, the rate for cancer remained stationary, the result being that the rate for cancer exceeded that for tuberculosis by 0.02 per thousand. In 1915 the death rate from cancer was 0.03 per thousand; in 1916, 0.06 per thousand; in 1917, 0.13 per thousand; in 1918, 0.14 per thousand; in 1919, 0.09 per thousand, and in 1920, 0.17 per thousand in excess of that of tuberculosis.

DEATH RATES(a) FROM CANCER AND PERCENTAGE ON TOTAL DEATHS, COMMONWEALTH, 1920.

State.	Death Rates (a) from Cancer.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	0.87	0.79	0.83	7.37	8.99	8.05
Victoria	0.91	0.91	0.91	7.48	8.88	8.13
Queensland	0.81	0.80	0.80	6.47	8.84	7.40
South Australia	0.98	0.88	0.93	7.92	9.56	8.66
Western Australia	0.87	0.73	0.81	7.22	9.21	7.94
Tasmania	0.69	0.73	0.71	7.39	7.75	7.56
Northern Territory	0.90	1.88	1.14	6.25	13.33	7.94
Federal Territory	0.83	..	0.46	25.00	..	16.67
Commonwealth	0.88	0.83	0.85	7.31	8.95	8.01

(a) Number of deaths from Cancer per 1,000 of mean population.

The following table shows the death rate of the Commonwealth in comparison with other countries :—

CANCER—DEATH RATE IN VARIOUS COUNTRIES.

Country.	Year.	Rate.	Country.	Year.	Rate.
Ceylon	1919	0.11	France	1911	0.80
Rumania	1914	0.13	Austria	1912	0.81
Serbia	1911	0.14	Prussia	1913	0.83
Jamaica	1915	0.17	Australia	1920	0.85
Chile	1914	0.36	New Zealand ..	1919	0.91
Hungary	1912	0.47	Germany	1913	0.91
Quebec (Canada) ..	1917	0.52	United States (Registration Area) ..	1915	0.91
South Africa Union (Whites)	1917	0.54	Norway	1917	0.96
Denmark	1914	0.58	England and Wales	1919	0.96
Spain	1919	0.60	Sweden	1915	1.06
Italy	1917	0.64	Netherlands ..	1915	1.09
Japan	1916	0.69	United Kingdom ..	1919	1.10
Belgium	1912	0.71	Scotland	1919	1.16
Ontario (Canada) ..	1919	0.77	Switzerland ..	1918	1.24
Ireland	1919	0.79			

The fifth issue of this Year Book contains, on pages 230, *et seq.*, a paper dealing, *inter alia*, with the incidence of cancer in the Commonwealth. The paper is not reprinted in the present issue.

(xvii) *Simple Meningitis.* Deaths from this cause increased seriously in 1915 and 1916, since when they have steadily declined. Sporadic cases of cerebro-spinal meningitis, which occurred to the end of 1914, are included in the figures, but from 1915 onward they were tabulated separately, the deaths during 1920 from cerebro-spinal meningitis being 84, and those from all other forms of meningitis, 512. Of the former, 29 occurred in New South Wales, 15 in Victoria, 30 in Queensland, 8 in South Australia, and 2 in Western Australia.

(xviii) *Apoplexy, Hæmorrhage and Softening of the Brain.* The deaths registered under this heading have been remarkably steady during the period under review. The figures for 1920 are made up as follows:—Cerebral hæmorrhage and apoplexy, 1,250 males and 1,164 females; softening of the brain, 48 males and 33 females.

(xix) *Organic Diseases of the Heart.* The number of deaths registered in 1920 was 5,370, viz., 3,077 males and 2,293 females. Of these deaths, New South Wales was responsible for 1,095 males and 777 females; Victoria for 890 males and 747 females; Queensland for 490 males and 306 females; South Australia for 290 males and 264 females; Western Australia for 184 males and 87 females; Tasmania for 124 males and 110 females; and the Northern Territory for 4 males and 2 females. To the figures for 1920 correspond the following death rates and percentages to total deaths:—

DEATH RATES(*a*) FROM ORGANIC HEART DISEASE AND PERCENTAGE ON TOTAL DEATHS, COMMONWEALTH, 1920.

State.	Death Rates (*a*) from Organic Heart Disease			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	1.07	0.77	0.92	9.08	8.78	8.94
Victoria ..	1.19	0.98	1.09	9.82	9.61	9.72
Queensland ..	1.28	0.87	1.08	10.16	9.80	10.02
South Australia	1.28	1.07	1.17	10.31	11.64	10.90
Western Australia	1.03	0.56	0.81	8.51	7.09	7.97
Tasmania ..	1.10	1.05	1.08	11.75	11.21	11.49
Northern Territory	1.21	1.88	1.37	8.33	13.33	9.52
Federal Territory	..	..	..	..	..	..
Commonwealth	1.15	0.87	1.01	9.60	9.46	9.54

(*a*) Number of deaths from Organic Heart Disease per 1,000 of mean population.

(xx) *Acute Bronchitis.* The classification of causes of death requires deaths of persons under five years of age, which are merely ascribed to "bronchitis," to be classified under "acute bronchitis," and similarly certified deaths of older persons under "chronic bronchitis." This rule has been followed throughout in compiling the tables for 1914–1920, with the result that acute bronchitis is credited with 389 deaths in 1914, 489 in 1915, 512 in 1916, 321 in 1917, 399 in 1918, 420 in 1919, and 398 deaths in 1920, viz., 211 males and 187 females.

(xxi) *Chronic Bronchitis.* The adjustment mentioned in the preceding paragraph gives a total of 962 deaths in 1920.

(xxii) *Pneumonia.* The 1920 figures were 1,250 males and 849 females, a total of 2,099 deaths.

(xxiii) *Other Diseases of the Respiratory System.* This head was established in 1910, the figures previously being included in "Other Diseases" (paragraph xxxvii). Deaths in 1914, 1,806; in 1915, 2,212; in 1916, 2,243; in 1917, 1,941; in 1918, 2,199; in 1919, 2,413; and in 1920, 2,527. The total for 1920 is made up as follows, viz. :—Diseases of the nasal fossae, 2 deaths; diseases of the larynx, 101 deaths; diseases of the thyroid body, 38 deaths; broncho-pneumonia, 1,366 deaths; pleurisy, 176 deaths; pulmonary congestion and apoplexy, 253 deaths; gangrene of the lung, 23 deaths; asthma, 199 deaths; pulmonary emphysema, 26 deaths; fibroid phthisis (miners' complaint), 256 deaths; other diseases of the respiratory system (tuberculosis excepted), 87 deaths.

(xxiv) *Diseases of the Stomach (Cancer excepted).* In 1920 this heading includes ulcer of the stomach, 70 males, 62 females; and other diseases of the stomach (cancer excepted), 161 males, 150 females; a total of 443 deaths for this class.

(xxv) *Diarrhœa and Enteritis (Children under two years only).* The number of deaths due to these causes is always a large one, varying from 1,719 in 1917 to a maximum of 3,506 in 1914. The total for 1920 was 3,067, distributed amongst the six States as follows:—New South Wales, 689 males, 564 females, total 1,253; Victoria, 379 males, 307 females, total 686; Queensland, 300 males, 197 females, total 497; South Australia, 166 males, 128 females, total 294; Western Australia, 138 males, 112 females, total 250; and Tasmania, 48 males, 39 females, total 87.

The following are the death rates and percentages on total deaths due to infantile diarrhœa and enteritis in the States and Territories for the year 1920:—

DEATH RATES (a) FROM INFANTILE DIARRHŒA AND ENTERITIS, AND PERCENTAGE ON TOTAL DEATHS, COMMONWEALTH, 1920.

State.	Death Rates (a) from Infantile Diarrhœa and Enteritis.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	0.67	0.56	0.62	5.70	6.38	5.99
Victoria ..	0.51	0.40	0.46	4.18	3.95	4.08
Queensland ..	0.78	0.56	0.68	6.22	6.31	6.25
South Australia	0.73	0.52	0.62	5.90	5.64	5.78
Western Australia	0.77	0.72	0.75	6.39	9.13	7.38
Tasmania ..	0.42	0.37	0.40	4.55	3.98	4.27
Federal Territory	..	..	..	..	..	..
Commonwealth	0.64	0.51	0.58	5.37	5.56	5.45

(a) Number of deaths from these diseases per 1,000 of mean population.

As a large number of these deaths is directly due to improper feeding, it would be interesting to know the percentage of infants who were bottle-fed, but, unfortunately, no provision exists for the registration of this information. The number of deaths was larger than usual in 1908, particularly in Victoria, and to a lesser degree in South Australia and in Tasmania, owing to the phenomenal heat experienced in the early part of that year. In 1913 all the States, with the exception of New South Wales and South Australia, experienced lower rates than in 1912, and in 1914 the rate fell in New South Wales and Western Australia, while it rose in Victoria, South Australia and Tasmania, and remained stationary in Queensland. The rates for 1915 were considerably lower than those for 1914 in every State with the exception of Queensland and South Australia, while in 1916 Victoria, South Australia and Tasmania had higher rates than in 1915. In 1917, every State experienced a large fall, the rates in Victoria, South Australia and Tasmania being less than half those of 1916. In 1918 the deaths from this cause were hardly more numerous than those for 1917, but 1919 and 1920 shewed a large advance. The age distribution of children dying from diarrhœa and enteritis during their first year of life will be found on page 149.

(xxvi) *Appendicitis and Typhlitis.* Prior to 1910, deaths from these causes were included in *Other Diseases*, (paragraph xxxvii.). Deaths numbered 374 in 1914, 356 in 1915, 321 in 1916, 321 in 1917, 371 in 1918, 352 in 1919, and 382 in 1920, viz., 251 males and 131 females.

(xxvii) *Hernia, Intestinal Obstructions.* The number of deaths has not varied greatly from year to year, the number registered in 1920 being 541, viz., 311 males and 230 females.

(xxviii) *Cirrhosis of the Liver.* There is little variation in the number of deaths from 1914 to 1920. 340 deaths were registered in 1920, viz., 234 males and 106 females.

(xxix) *Nephritis and Bright's Disease.* The number of deaths attributable to these diseases from year to year is a very large one. In 1915, there were 2,274, 1,413 males and 861 females; in 1916, 2,329, 1,416 males and 913 females; in 1917, 2,203, 1,343 males and 860 females; in 1918, 2,144; in 1919, 2,221, and in 1920, 2286, viz., 1,355 males and 931 females. Of the deaths registered in 1920, those of 89 males and 93 females were ascribed to acute nephritis, and those of 1,266 males and 838 females to Bright's Disease. New South Wales was responsible for 788 deaths; Victoria for 714; Queensland for 403; South Australia for 192; Western Australia for 116; and Tasmania for 73; making the total of 2,286.

(xxx) *Non-cancerous Tumours and other Diseases of the Female Genital Organs.* Deaths in 1914 numbered 138; in 1915, 139; in 1916, 153; in 1917, 148; in 1918, 159; in 1919, 133; and in 1920, 154. Included in the 154 deaths registered in 1920 were the following:—Non-puerperal uterine hæmorrhage, 2; non-cancerous uterine tumours, 36; other diseases of the uterus, 34; cysts and ovarian tumours, 28; salpingitis and other diseases of the female genital organs, 54.

(xxxi) *Puerperal Septicæmia (Puerperal Fever, Puerperal Peritonitis, Puerperal Phlebitis).* The number of deaths is fairly constant, varying from a maximum of 282 in 1916 to a minimum of 166 in 1919. In 1920, there were 250 deaths.

(xxxii) *Other Puerperal Accidents of Pregnancy and Confinement.* The death in 1914 numbered 419; in 1915, 394; in 1916, 411; in 1917, 482; in 1918, 409 in 1919, 404; and in 1920, 433. Included in the 433 deaths registered in 1920 were the following :—Accidents of pregnancy, 100; puerperal hæmorrhage, 96; other accidents of childbirth, 64; puerperal albuminuria and convulsions, 117; puerperal phlegmasia alba dolens, embolus, sudden death, 49; and death following childbirth 7.

(xxxiia) *All Puerperal Causes.* The 683 deaths registered in 1920 under the two preceding headings will be found tabulated in "Bulletin No. 38; Commonwealth Demography," under various aspects. It will suffice to repeat here that the 683 mothers who died from puerperal causes included 624 married women and 59 single.

The ages of the mothers who died varied from 14 to 47 years, and are shewn in the following table :—

AGES OF MOTHERS WHO DIED FROM PUERPERAL CAUSES, COMMONWEALTH, 1920.

Age at Death.	Married Women.	Single Women.	Total.	Age at Death.	Married Women.	Single. Women.	Total.
14 years ..	..	1	1	34 years ..	23	..	23
15 ,, ..	..	1	1	35 ,, ..	26	1	27
16 ,, ..	2	..	2	36 ,, ..	27	1	28
17 ,, ..	..	3	3	37 ,, ..	14	1	15
18 ,, ..	5	4	9	38 ,, ..	32	1	33
19 ,, ..	13	4	17	39 ,, ..	24	2	26
20 ,, ..	8	9	17	40 ,, ..	15	1	16
21 ,, ..	10	..	10	41 ,, ..	9	..	9
22 ,, ..	18	6	24	42 ,, ..	15	..	15
23 ,, ..	21	4	25	43 ,, ..	9	..	9
24 ,, ..	26	6	32	44 ,, ..	7	..	7
25 ,, ..	31	1	32	45 ,, ..	2	..	2
26 ,, ..	34	3	37	46 ,, ..	4	..	4
27 ,, ..	33	1	34	47 ,, ..	2	..	2
28 ,, ..	32	2	34	Unspecified	1	..	1
29 ,, ..	39	1	40				
30 ,, ..	29	2	31				
31 ,, ..	30	1	31				
32 ,, ..	45	3	48				
33 ,, ..	38	..	38	Total deaths	624	59	683

The total number of children left by the married mothers shewn in the above table was 1,782, an average of 2.9 children per mother.

Forty-two of the mothers who died had been married less than one year, 100 between one and two years, 38 between two and three years, the duration of marriage ranging up to 29 years, apart from 16 cases in which the date of marriage could not be stated. This tabulation will be found in detail, distinguishing the ages at marriage, in "Bulletin No. 38; Commonwealth Demography," as will a further tabulation shewing in combination the duration of marriage and previous issue.

(xxxiii) *Congenital Debility and Malformations.* The total deaths registered under these heads in 1920 were 4,046, of whom 3,938 were children under one year of age. The figures include :—Malformations, 349 males, 306 females, total 655; premature birth, 1,289 males, 887 females, total 2,176; and congenital debility, icterus, and sclerema of children under one year of age, 716 males and 499 females, total 1,215; or a grand total of 4,046. Of these deaths, 1,566 were registered in New South Wales, viz., 924 males and 642 females; 1,186 in Victoria, viz., 692 males and 494 females; 534 in Queensland, viz., 308 males and 226 females; 374 in South Australia, viz., 211 males and 163 females; 219 in Western Australia, viz., 137 males and 82 females; 160 in Tasmania, viz., 78 males and 82 females; 3 males and 3 females in the Northern Territory, and 1 male in Federal Territory.

(xxxiv) *Senile Debility.* The deaths ascribed to "old age" form a large group, and are in excess of those due to infantile debility. In 1920, 4,636 deaths were attributed to this cause, and were distributed among the States as follows: 1,668 occurred in New South Wales, viz., 963 males and 705 females; 1,522 in Victoria, viz., 715 males and 807 females; 528 in Queensland, viz., 333 males and 195 females; 470 in South Australia, viz., 226 males and 244 females; 263 in Western Australia, viz., 183 males and 80 females; 184 in Tasmania, viz., 84 males and 100 females; and 1 male in the Northern Territory.

Of the males whose deaths were described as due to senility, seven were aged between 55 and 59, and the deaths ranged up to twelve over the age of 100. Of the females, three were aged between 55 and 60, and 12 were of the age of 100 or over.

(xxxv) *Violence.* A very large number of deaths is due every year to external violence, and, as may be expected from the fact that their occupations expose them much more to accidents, males largely predominate. The figures quoted are exclusive of suicides, which have been treated as a separate group. Deaths ascribed to violence numbered in 1914, 3,121, viz., 2,458 males and 663 females; in 1915, 2,851, viz., 2,251 males and 600 females; in 1916, 2,712, viz., 2,134 males and 578 females; in 1917, 2,656, viz., 2,069 males and 587 females; in 1918, 2,641, viz., 2,039 males and 602 females; in 1919, 2,799, viz., 2,161 males and 638 females; and in 1920, 2,791, viz., 2,159 males and 632 females. Of the deaths registered in 1920, those of 787 males and 237 females occurred in New South Wales; those of 552 males and 164 females in Victoria; those of 378 males and 92 females in Queensland; those of 185 males and 64 females in South Australia; those of 186 males and 51 females in Western Australia; those of 63 males and 24 females in Tasmania; those of 7 males in the Northern Territory; and that of 1 male in the Federal Territory.

The following table shews the various kinds of violent deaths which occurred in 1920, distinguishing males and females:—

DEATHS FROM EXTERNAL VIOLENCE, COMMONWEALTH, 1920.

Cause of Death.	Males.	Females.	Total.
Poisoning by food	21	18	39
Venomous bites and stings	18	5	23
Other acute poisonings..	34	17	51
Conflagration	3	3	6
Burns (conflagration excepted)	122	146	268
Absorption of deleterious gases (conflagration excepted)	39	19	58
Accidental drowning	418	82	500
Traumatism by firearms	120	15	135
Traumatism by cutting or piercing instruments ..	1	..	1
Traumatism by fall	267	54	321
Traumatism in mines or quarries	65	..	65

DEATHS FROM EXTERNAL VIOLENCE, COMMONWEALTH, 1920—*continued.*

Cause of Death.	Males.	Females.	Total.
Traumatism by machines	19	..	19
Traumatism by other crushing (vehicles, railways, &c.)	571	107	678
Injuries by animals	26	1	27
Starvation, thirst, fatigue	40	6	46
Effects of heat	48	34	82
Lightning	5	..	5
Electricity (lightning excepted)	12	2	14
Homicide by firearms	21	12	33
Homicide by cutting or piercing instruments ..	8	6	14
Homicide by other means	42	24	66
Fractures (cause not specified)	113	55	168
Other external violence	146	26	172
Total Deaths	2,159	632	2,791

In every kind of violent death there was, therefore, an excess of males, with the exception of burning accidents.

(xxxvi) *Suicide.* It may be said that suicides have remained fairly stationary during recent years, the number in 1914 having been 643, viz., 534 males and 109 females; in 1915, 658, viz., 536 males and 122 females; in 1916, 577, viz., 466 males and 111 females; in 1917, 502, viz., 408 males and 94 females; in 1918, 498, viz., 408 males and 90 females; in 1919, 546, viz., 440 males and 106 females; and in 1920, 636, viz., 516 males and 120 females. Of the suicides in 1920, those of 202 males and 53 females occurred in New South Wales; those of 116 males and 26 females in Victoria; those of 113 males and 25 females in Queensland; those of 25 males and 4 females in South Australia; those of 41 males and 6 females in Western Australia; those of 15 males and 5 females in Tasmania; and those of 4 males and 1 female in the Northern Territory.

The modes adopted by persons who committed suicide in the years 1914 to 1920 were as follows:—

MALE AND FEMALE SUICIDES (MODES ADOPTED), COMMONWEALTH, 1914 TO 1920.

Mode of Death	Males.		Females.		Total.	
	Total of 6 years 1914–19.	1920.	Total of 6 years 1914–19.	1920.	Total of 6 years 1914–19.	1920.
Poisoning	653	93	376	55	1,029	148
Asphyxia	11	4	9	..	20	4
Hanging or Strangulation ..	470	64	110	25	580	89
Drowning	230	26	124	16	354	42
Firearms	1,181	191	51	7	1,232	198
Cutting instruments ..	590	110	39	9	629	119
Precipitation from a height ..	33	4	25	4	58	8
Crushing	48	12	12	2	60	14
Other modes	92	12	17	2	109	14
Total	3,308	516	763	120	4,071	636

The death rates from suicide and the percentage on total deaths borne by suicides are shewn in the following table :—

DEATH RATES (*a*) FROM SUICIDE AND PERCENTAGE ON TOTAL DEATHS, COMMONWEALTH, 1920.

State.	Death Rates (*a*) from Suicide.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	0.20	0.05	0.13	1.67	0.60	1.22
Victoria	0.16	0.03	0.09	1.28	0.33	0.84
Queensland	0.29	0.07	0.19	2.34	0.81	1.74
South Australia	0.11	0.02	0.06	0.89	0.18	0.57
Western Australia	0.23	0.04	0.14	1.90	0.49	1.39
Tasmania	0.13	0.05	0.09	1.42	0.51	0.98
Northern Territory ..	1.21	0.94	1.14	8.33	6.67	7.94
Commonwealth ..	0.19	0.05	0.12	1.61	0.50	1.13

(*a*) Number of deaths from suicide per 1,000 of mean population.

From the following table, which shews the ages of the persons who committed suicide in 1920, it will be seen that both extreme youth and extreme old age are represented :—

AGES OF PERSONS WHO COMMITTED SUICIDE, COMMONWEALTH, 1920.

Ages.	M.	F.	Total.	Ages.	M.	F.	Total.
15 years and under 20	9	4	13	70 years and under 75	17	2	19
20 ,, ,, 25	27	10	37	75 ,, ,, 80	9	1	10
25 ,, ,, 30	44	16	60	80 ,, ,, 85	8	..	8
30 ,, ,, 35	46	13	59	85 ,, ,, 90	3	..	3
35 ,, ,, 40	60	20	80	90 ,, ,, 94	2	..	2
40 ,, ,, 45	61	16	77	Not stated ..	6	..	6
45 ,, ,, 50	54	12	66				
50 ,, ,, 55	65	10	75				
55 ,, ,, 60	46	7	53				
60 ,, ,, 65	31	7	38				
65 ,, ,, 70	28	2	30	Total Deaths ..	516	120	636

The following table shews the occupations of the 516 males who committed suicide :—

OCCUPATIONS OF MALE PERSONS WHO COMMITTED SUICIDE, COMMONWEALTH, 1920.

Occupation.	Deaths.	Occupation.	Deaths.
Professional class	35	Pastoral class	30
Domestic class	22	Working in mines and quarries	14
Mercantile class	85	Other primary producers ..	7
Engaged in transport and communication	34	Independent means	5
Manufacturing class	51	Dependents	1
Engaged in building and construction	20	Occupation not stated ..	27
Indefinite industrial workers ..	131		
Agricultural class	54	Total Deaths	516

It has been said that suicide has become more frequent during recent years, but an examination of the figures from the year 1871 onwards shews that the assertion needs qualification. The absolute figures have certainly increased, but proportionately to the population the figures for 1906–10 were practically the same as those for 1886–90 and 1891–95. The figures for the five years 1911–15, shew, however, a regrettable increase, not only absolutely, but also in proportion to the population. The last five years shew lower figures and percentages than the average of 1911–15, and in 1918 particularly the figures in proportion to population decreased almost to the level of the period 1871–85. No particulars are available for Western Australia prior to 1886, and from 1886 to 1895 the sexes are not distinguished. The figures for the first five periods are, therefore, exclusive of Western Australia :—

SUICIDES, COMMONWEALTH, 1871-75 TO 1920.

Period.	Number of Suicides.			Suicides per One Million.			Suicides of Females to 100 Suicides of Males. Based on—	
	Males.	Females.	Total.	Males.	Females.	Total.	Absolute Figures.	Rates.
1871–75 ..	715	150	865	150.94	37.56	99.07	20.98	24.88
1876–80 ..	878	145	1,023	159.69	31.06	100.62	16.51	19.45
1881–85 ..	999	183	1,182	152.58	32.90	97.61	18.32	21.56
1886–90 ..	1,394	292	(a) 1,686	179.20	43.97	(c) 116.92	20.95	24.54
1891–95 ..	1,574	337	(b) 1,911	181.34	44.09	(d) 117.07	21.41	24.31
1896–1900	1,838	410	2,248	191.11	47.88	123.65	22.31	25.05
1901–05 ..	2,054	380	2,434	201.78	40.88	124.98	18.50	20.26
1906–10 ..	2,031	437	2,468	186.11	43.22	117.39	21.51	23.22
1911–15 ..	2,546	577	3,123	206.15	50.36	131.17	22.66	24.43
1916 ..	466	111	577	190.06	45.21	117.58	23.82	23.78
1917 ..	408	94	502	169.55	37.66	102.40	23.04	22.21
1918 ..	408	90	498	166.97	35.48	99.99	22.06	21.25
1919 ..	440	106	546	171.40	41.15	106.16	24.09	24.01
1920 ..	516	120	636	192.90	45.74	120.04	23·26	23.71

(a) 1705 inclusive of Western Australian figures. (b) 1984 inclusive of Western Australian figures. (c) 116.49 inclusive of Western Australian figures. (d) 119.11 inclusive of Western Australian figures.

In the fifth issue of this Year Book (pp. 240, et seq.), the result of a series of investigations into the periodicity of suicide was published. The paper was partly reprinted in the following year (pp. 241, et seq.), but is not repeated in the present issue.

(xxxvii.) *Other Diseases.* The number of causes included under this heading is a very large one, amounting to no less than 79 of the items shown in the detailed classification, and deaths were recorded under every one of these with the exception of the following :—Glanders, rabies, pellagra, occupational poisonings other than lead poisoning, intestinal parasites, and amputations. The total number of deaths under "other diseases" in 1914 was 8,670, viz., 5,081 males and 3,589 females; in 1915, 9,090, viz., 5,259 males and 3,831 females; in 1916, 9,433, viz., 5,489 males and 3,944 females; in 1917, 8,871, viz., 5,147 males and 3,724 females; in 1918, 9,226, viz., 5,290 males and 3,936 females; and in 1919, 9,390, viz., 5,316 males and 4,070 females; and in 1920, 10,048, viz., 5,740 males and 4,308 females. In accordance with the revised edition of the classification, the following changes were made in this heading during 1910: beri-beri is now included under this heading instead of under (xii), "Other Epidemic Diseases." Other diseases of the respiratory system are now shewn under a new head (xxiii), and appendicitis and typhlitis under head (xxvi). Some of the diseases included here account for very considerable numbers of deaths. Particulars of the deaths included in 1920 are shewn in the following table :—

CAUSES OF DEATHS INCLUDED UNDER "OTHER DISEASES," COMMONWEALTH, 1920.

Causes.	M.	F.	Total.
Purulent Infection and Septicæmia	72	70	142
Anthrax	3	..	3
Tetanus	85	37	122
Mycoses	7	..	7
Beri-beri	25	..	25
Rickets	3	2	5
Syphilis	105	49	154
Gonococcus Infection ..	3	1	4
Other Tumours (Tumours of the female genital organs excepted)	23	18	41
Acute Articular Rheumatism	80	81	161
Chronic Rheumatism and Gout	72	93	165
Scurvy	3	1	4
Diabetes	298	319	617
Exophthalmic Goitre ..	3	71	74
Addison's Disease ..	14	19	33
Leucæmia	79	40	119
Anæmia, Chlorosis ..	161	192	353
Other General Diseases ..	45	53	98
Acute and Chronic Alcoholism	111	29	140
Chronic Lead Poisoning ..	10	3	13
Other Chronic Poisonings ..	3	..	3
Encephalitis	67	49	116
Progressive Locomotor Ataxia	74	12	86
Other Diseases of the Spinal Cord	183	131	914
Paralysis without indicated cause	172	142	814
General Paralysis of the Insane	117	22	139
Other Forms of Mental Alienation	63	50	122
Epilepsy	127	98	225
Convulsions (non-puerperal)	5	21	26
Convulsions of Children under five years of age ..	156	130	286
Chorea	6	5	11
Neuralgia and Neuritis ..	16	15	31
Other Diseases of the Nervous System	128	111	239
Diseases of the Eye ..	1	2	3
Diseases of the Ear ..	27	23	50
Pericarditis	45	31	76
Acute Endocarditis ..	264	197	461
Angina Pectoris	113	39	152
Diseases of the Arteries, Atheroma, Aneurism ..	552	263	815
Embolism and Thrombosis ..	161	202	363
Diseases of the Veins (Varices, Varicose Ulcers, Hæmorrhoids)	6	18	24
Diseases of the Lymphatic System	14	10	24
Hæmorrhages, Other Diseases of Circulatory System ..	44	64	108
Diseases of the Mouth and its Associated Organs ..	10	6	16
Diseases of the Pharynx ..	53	50	103
Diseases of the Oesophagus	14	9	23
Diarrhœa and Enteritis of Children over two years of age and Adults ..	565	575	1,140
Ankylostomiasis	..	1	1
Other Diseases of the Intestines	45	52	97
Acute Yellow Atrophy of the Liver	5	14	19
Hydatid Tumours of the Liver	26	15	41
Biliary Calculi	41	87	128
Other Diseases of the Liver	99	94	193
Diseases of the Spleen ..	5	2	7
Simple Peritonitis (non-puerperal)	67	94	161
Other Diseases of the Digestive System	28	15	43
Other Diseases of the Kidneys and their Adnexa ..	126	60	186
Calculi of Urinary Passages	24	8	32
Diseases of the Bladder ..	153	34	187
Other Diseases of the Urethra, Urinary Abscess, &c. ..	42	..	42
Diseases of the Prostate ..	252	..	252
Non-venereal Diseases of the Male Genital Organs ..	4	..	4
Non-puerperal Diseases of the Breast (Cancer excepted)	..	4	4
Gangrene	68	54	122
Furuncle	20	16	36
Acute Abscess	71	51	122
Other Diseases of the Skin and Adnexa	25	30	55
Non-tuberculous Diseases of the Bones	36	21	57
Other Diseases of the Joints (Tuberculosis and Rheumatism excepted) ..	12	5	17
Other Diseases of the Organs of Locomotion ..	3	..	3
Other Diseases peculiar to Infancy	395	279	674
Want of Care (Infants) ..	5	10	15
Total Deaths ..	5,740	4,308	10,048

(xxxviii) Unspecified or Ill-defined Diseases. The number of cases which has to be included here is a considerable one from year to year, comprising 844 in 1914, 717 in 1915, 663 in 1916, 667 in 1917, 664 in 1918, 707 in 1919, and 805 in 1920. The detailed classification distinguishes these ill-defined diseases under three headings:—Ill-defined organic diseases, including such definitions as dropsy, anasarca, ascites, general oedema, &c. sudden death, including syncope; and unspecified or ill-defined causes, of which the following are specimens:—Asthenia, coma, dentition, exhaustion, heart failure, &c. In 1920 the number of cases of death which would have to be classed under the first of these categories was 27; those belonging to the second, 45; and those belonging to the third, 733. It is, of course, true that there must always occur some cases where the disease is not well characterised, or where sufficient information is not procurable to allow of a clear definition being given in the certificate of death, but in the majority of cases included under this heading a more complete diagnosis and consequently a more satisfactory certificate would no doubt have been possible.

In the fifth issue of this Year Book, pp. 234, *et seq.*, some observations were published dealing with the incidence of scarlet fever, measles, whooping cough, diphtheria and croup, typhoid, diarrhoea, enteritis, and dysentery.

19. Causes of Death in Classes.—The figures presented in the preceding paragraphs relate to certain definite causes of death. It is almost generally acknowledged that figures of this kind are of greater value in medical statistics than is a classification under general headings. The classification under fourteen general headings adopted by the compilers of The International Nomenclature is, however, shewn in the following table, together with the death rates and percentages on total deaths pertaining to those classes:—

DEATHS, DEATH RATES (a), AND PERCENTAGES ON TOTAL DEATHS IN CLASSES, COMMONWEALTH, 1920.

Class.	Total Deaths.			Death Rates. (a)			Percentage on Total Deaths.		
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
1. General diseases	7,179	6,088	13,267	2.68	2.32	2.50	22.40	25.12	23.57
2. Diseases of the Nervous System and of the Organs of Special Sense	2,804	2,249	5,053	1.05	0.86	0.95	8.75	9.28	8.98
3. Diseases of the Circulatory System	4,276	3,117	7,393	1.60	1.19	1.40	13.34	12.87	13.13
4. Diseases of the Respiratory System	3,448	2,538	5,986	1.28	0.96	1.13	10.76	10.47	10.63
5. Diseases of the Digestive Organs	3,705	3,040	6,745	1.39	1.16	1.27	11.56	12.54	11.98
6. Diseases of the Genito-Urinary System and Adnexa	1,956	1,191	3,147	0.73	0.45	0.59	6.10	4.92	5.59
7. Puerperal Condition	..	683	683	..	0.26	0.13	..	2.82	1.21
8. Diseases of the Skin and of the Cellular Tissue	184	151	335	0.07	0.06	0.06	0.57	0.62	0.60
9. Diseases of the Organs of Locomotion	51	26	77	0.02	0.01	0.02	0.16	0.11	0.14
10. Malformations	349	306	655	0.13	0.12	0.12	1.09	1.26	1.16
11. Infancy	2,405	1,675	4,080	0.90	0.64	0.77	7.50	6.91	7.25
12. Old Age	2,505	2,131	4,636	0.94	0.81	0.88	7.82	8.79	8.24
13. Violence	2,675	752	3,427	1.00	0.29	0.65	8.34	3.10	6.09
14. Ill-defined Diseases	516	289	805	0.19	0.11	0.15	1.61	1.19	1.43
Total	32,053	24,236	56,289	11.98	9.24	10.62	100.00	100.00	100.00

(a) Number of deaths per 1,000 of mean population.

20. Deaths of Children under one Year.—"Bulletin No. 38; Commonwealth Demography," contains tables shewing for twenty causes the age at death of children dying during the first year of life. In the Bulletin mentioned, the particulars

are published for males and females separately for the States, Territories and Commonwealth, but the totals for the Commonwealth only are here shewn for both sexes combined :—

DEATHS OF CHILDREN UNDER ONE YEAR, COMMONWEALTH, 1920.

Age at Death.	Whooping Cough.	Pulmonary Tuberculosis.	Acute Miliary Tuberculosis.	Tubercular Meningitis.	Abdominal Tuberculosis.	Disseminated Tuberculosis.	Syphilis.	Simple Meningitis.	Cerebro-Spinal Meningitis.	Convulsions.	Acute Bronchitis.
Under 1 week ..	1	..	..	..	..	..	4	7	..	72	3
1 week and under 2 ..	2	..	1	..	..	..	1	4	..	32	12
2 weeks „ 3 ..	7	..	..	..	..	..	7	4	..	8	11
3 „ „ 1 mth.	8	1	..	..	..	..	3	2	..	7	10
1 month „ 2 ..	47	1	..	3	..	..	18	9	1	10	33
2 months „ 3 ..	55	..	..	1	1	..	11	16	2	7	29
3 „ „ 4 ..	44	1	..	1	1	1	8	12	..	6	16
4 „ „ 5 ..	35	..	..	2	2	..	4	13	2	10	8
5 „ „ 6 ..	26	1	1	2	..	..	7	12	1	9	14
6 „ „ 7 ..	22	2	1	3	..	..	4	8	1	6	14
7 „ „ 8 ..	22	2	..	3	..	..	2	16	..	3	8
8 „ „ 9 ..	14	..	..	6	..	..	2	19	1	5	8
9 „ „ 10 ..	9	1	1	2	..	..	..	12	2	4	2
10 „ „ 11 ..	17	1	..	1	..	..	..	16	..	8	8
11 „ „ 12 ..	28	1	2	1	..	1	..	11	..	2	9
Total under 1 year ..	337	11	6	25	4	2	71	161	10	197	185

Age at Death.	Broncho-Pneumonia.	Pneumonia.	Diarrhoea and Enteritis.	Hernia and Intestinal Obstruction.	Malformations.	Premature Birth.	Congenital Debility, Icterus and Sclerema.	Other Diseases peculiar to Early Infancy.	Lack of Care.	Other Causes.	Total.
Under 1 week ..	7	9	16	8	263	1,654	432	554	15	108	3,153
1 week and under 2 ..	10	6	19	5	62	185	123	51	..	47	560
2 weeks „ 3 ..	15	8	26	..	28	112	64	29	..	48	367
3 „ „ 1 mth.	12	4	25	..	21	68	49	8	..	43	261
1 month „ 2 ..	77	24	163	6	39	106	153	21	..	73	793
2 months „ 3 ..	51	16	232	6	46	26	118	7	..	59	682
3 „ „ 4 ..	40	18	272	7	22	11	87	3	..	53	603
4 „ „ 5 ..	36	19	264	16	17	5	72	1	..	37	543
5 „ „ 6 ..	23	17	255	13	7	3	32	..	..	27	450
6 „ „ 7 ..	24	12	234	15	13	1	26	..	..	50	435
7 „ „ 8 ..	20	14	175	11	10	..	13	..	..	43	342
8 „ „ 9 ..	27	13	159	12	7	1	13	..	..	33	320
9 „ „ 10 ..	27	12	168	4	5	..	16	..	..	37	302
10 „ „ 11 ..	33	17	150	3	6	4	10	..	..	53	327
11 „ „ 12 ..	21	9	146	3	1	..	7	..	..	51	293
Total under 1 year ..	423	198	2,304	108	547	2,176	1,215	674	15	762	9,431

It will be seen that the maximum number of deaths from convulsions, pneumonia, malformations, acute bronchitis, premature birth, congenital debility, icterus and sclerema, other diseases peculiar to early infancy, and lack of care, occurred during the first month of life, while broncho-pneumonia was most fatal during the second month. Diarrhoea

and enteritis carried off more children in the fourth and fifth months than in any other, the numbers gradually decreasing toward the end of the year. Whooping cough reached its maximum during the second and third months of life.

21. **Ages at Death of Married Males and Females, and Issue.**—"Bulletin No. 38: Commonwealth Demography" contains a number of tables for the Commonwealth, shewing the age at marriage, age at death, duration of life after marriage, birthplaces, and occupations, in combination with the issue of married persons who died in 1920. A short summary of the tables mentioned is given hereunder. Deaths of married males in 1920 numbered 15,240, and of married females, 14,188. The tabulations mentioned in the sequel deal, however, with only 14,815 males and 13,886 females, the information in the remaining 727 cases being too incomplete to be utilised. The total number of children in the families of the 14,815 males was 75,119; and of the 13,886 females, 71,799. The average number of children is shewn for various age-groups in the following table :—

AGES AT DEATH OF MARRIED MALES AND FEMALES, AND AVERAGE ISSUE, COMMONWEALTH, 1920.

Age at Death.	Average Family of Males.	Average Family of Females.	Age at Death.	Average Family of Males.	Average Family of Females.
Under 20 years ..	..	0.77	70 to 74 years ..	6.19	6.48
20 to 24 years ..	1.04	1.15	75 „ 79 „ ..	6.59	6.50
25 „ 29 „ ..	1.39	1.80	80 „ 84 „ ..	6.74	6.56
30 „ 34 „ ..	1.98	2.57	85 „ 89 „ ..	6.78	6.50
35 „ 39 „ ..	2.57	3.34	90 „ 94 „ ..	6.86	6.58
40 „ 44 „ ..	2.94	3.74	95 „ 99 „ ..	7.37	5.97
45 „ 49 „ ..	3.68	3.81	100 years and upwards	5.85	6.64
50 „ 54 „ ..	4.02	4.22	Age not stated ..	6.47	3.64
55 „ 59 „ ..	4.32	4.82			
60 „ 64 „ ..	5.11	5.60			
65 „ 69 „ ..	5.67	6.16	All ages ..	5.07	5.17

The figures shewn in the preceding table include the issue both living and dead; and the proportion between them, taking the issue of deceased males and females together, was about as 1,000 to 301. The totals are shewn in the following table :—

ISSUE OF MARRIED MALES AND FEMALES, COMMONWEALTH, 1920.

Issue of Married Males.	Males.	Females.	Total.	Issue of Married Females.	Males.	Females.	Total.
Living ..	29,655	29,492	59,147	Living ..	26,817	26,934	53,751
Dead ..	9,062	6,910	15,972	Dead ..	9,988	8,060	18,048
Total ..	38,717	36,402	75,119	Total ..	36,805	34,994	71,799

These figures shew a masculinity in the births of 2.81, which agrees fairly well with the experience of the birth statistics.

22. **Ages at Marriage of Males and Females, and Issue.**—While the table giving the average families of married males and females naturally shews an increase in the averages with advancing ages at death, the following table, which gives the average families of males and females according to the age at marriage of the deceased parents, shews a corresponding decrease in the averages as the age at marriage advances:—

AGES AT MARRIAGE OF MALES AND FEMALES, AND AVERAGE ISSUE, COMMONWEALTH, 1920.

Age at Marriage.	Average Family of Males.	Average Family of Females.
Under 20 years	6.61	7.07
20 to 24 "	6.08	5.58
25 " 29 "	5.41	4.26
30 " 34 "	4.40	2.81
35 " 39 "	3.71	1.60
40 " 44 "	2.82	0.67
45 " 49 "	2.02	0.15
50 " 54 "	1.52	..
55 " 59 "	1.57	..
60 " 64 "	0.52	..
65 years and upwards	0.54	..
Age not stated	5.16	5.46
All ages	5.07	5.17

It will be seen that of women who were married at ages from 40 to 44 years, one in every three gave birth to a child.

23. **Duration of Life after Marriage of Males and Females.**—The duration of life after marriage has been tabulated for males and females both in combination with the age at marriage, and with the total and average issue. The tables shewing the result do not, however, lend themselves to condensation, and are, therefore, omitted here. They will be found in "Bulletin No. 38 of Commonwealth Demography," pages 214 to 219.

24. **Birthplaces of Married Males and Females, and Issue.**—The following table shews the birthplaces of married males and females whose deaths were registered in 1920, together with their average issue. No generalisations can, of course, be made in those cases where the number of deaths is small, and where the average family had to be worked out on small figures. But where the figures are comparatively large, as in the case of natives of the Commonwealth, differences occur between the averages of the individual States which appear inexplicable on any other ground than that of inefficient registration in some of the States. It will be noted that the differences occur both in the male and female averages. Although the figures apply to the Commonwealth as a whole, it must be borne in mind that the vast majority of deaths of natives of any one State are registered in that particular State.

BIRTHPLACES AT MARRIAGE OF MALES AND FEMALES, AND AVERAGE ISSUE, COMMONWEALTH, 1920.

Birthplace.	Married Males. Deaths.	Married Males. Average Family.	Married Females. Deaths.	Married Females. Average Family.
New South Wales ..	2,530	5.11	2,742	5.11
Victoria	2,352	4.07	2,150	4.14
Queensland .	424	3.99	561	3.70
South Australia ..	877	4.47	845	4.50
Western Australia ..	125	5.10	114	5.20
Tasmania ..	524	5.48	559	5.33
Northern Territory	..	..	1	3.00
New Zealand ..	82	3.21	77	4.10
England	3,962	5.43	3,205	5.51
Wales	153	5.70	121	5.73
Scotland	1,085	5.39	910	5.76
Ireland	1,548	6.02	1,080	6.04
Isle of Man ..	6	3.33	10	5.50
Other European British Possessions ..	24	3.71	20	4.65
Austria-Hungary ..	21	2.71	7	4.71
Belgium	3	3.67	4	0.50
Denmark ..	77	4.31	27	5.00
France	40	4.53	11	5.09
Germany	370	6.26	284	6.33
Greece	17	4.06	2	8.50
Italy	37	4.46	15	6.53
Netherlands ..	3	6.00	..	..
Norway	28	3.61	7	5.00
Portugal ..	6	3.00	..	..
Russia	53	4.80	14	6.70
Spain	3	3.67	4	5.50
Sweden	74	3.73	10	3.50
Switzerland ..	27	5.33	7	3.86
Other Europ. C'tries.	7	5.14	..	..
British India ..	36	3.69	20	4.15
Ceylon	7	5.57	1	6.00
Hong Kong ..	1	4.00	..	..
Afghanistan ..	1	2.00	..	..
China	43	2.56	2	10.00
Japan	5	1.00	..	..

Birthplace.	Married Males. Deaths.	Married Males. Average Family.	Married Females. Deaths.	Married Females. Average Family.
Java	1	1.00	..	..
Philippine Islands ..	1	6.00	..	..
Syria . ..	2	3.50	4	5.75
Other Asiatic C'ntries	1	10.00	..	..
Mauritius ..	3	4.33	2	0.50
Union of Sth. Africa	9	6.44	10	4.20
Other African British Possessions	1	6.00	1	6.00
Egypt . ..	..	..	1	9.00
Other African C'ntries	2	3.50	2	9.50
Barbadoes ..	1	4.00	..	..
Canada	31	5.06	13	4.85
Jamaica	3	1.33	1	2.00
Newfoundland ..	1	1.00	1	1.00
Other American British Possessions ..	3	4.33	2	10.50
Brazil	..	..	1	7.00
Chile	2	5.50	1	11.00
Peru	1	5.00	..	..
United States ..	39	4.46	26	4.23
Other American Countries ..	12	4.17	7	4.14
Fiji	3	1.67	2	2.50
Friendly Islands ..	1	5.00	..	..
Other Polynesian British Possessions	2	4.50	..	..
New Caledonia ..	2	2.50	1	1.00
New Hebrides ..	..	..	1	3.00
Samoa	..	..	1	..
Other Polynesian Is.	..	..	3	3.33
S.Sea Islds. (so descd.)	8	2.13	1	1.00
At Sea	59	6.39	53	7.17
Not stated ..	67	3.87	42	5.29
Total ..	14,815	5.07	13,886	5.17

25. **Occupations of Married Males, and Issue.**—A final tabulation shews the average issue in combination with the occupation of deceased males. When these figures are available for a number of years they will afford some clue to the much debated question as to the decrease in the birth rate among various classes of the population.

OCCUPATIONS OF MARRIED MALES, AND AVERAGE ISSUE, COMMONWEALTH, 1920.

Occupation.	Deaths of Married Males.	Average Family.	Occupation.	Deaths of Married Males.	Average Family.
Professional class	980	4.25	Agricultural class	2,459	6.38
Domestic class	448	3.85	Pastoral class	576	5.88
Mercantile class	2,010	4.21	Working in mines and quarries	864	5.24
Engaged in transport and communication	1,271	4.54	Other primary producers ..	110	5.10
Manufacturing class	1,723	4.91	Independent means ..	886	5.47
Engaged in building and construction	938	5.19	Dependents	29	4.31
Indefinite industrial workers ..	2,533	5.00	Occupation not stated ..	488	5.34
			Total .. .	14,815	5.07

In the fifth issue of this Year Book (pp. 227 to 229), a series of observations was published dealing with the Commonwealth Rates of Infantile Mortality. These observations are not reprinted in the present issue.

§ 4. Legislation relating to Registration of Births, Deaths, and Marriages, and Legitimation of Children.

A review of the legislation relative to the above subject appeared in the thirteenth issue of this Year Book, pages 212-255.

§ 5. Graphical Representation of Vital Statistics.

1. **General.**—The progressive fluctuations of the numbers representing the total births and marriages are important indexes of the economic conditions and social ideals of a community. For this reason graphs have been prepared (see pages 105 and 106), shewing these fluctuations from 1860 to 1920, both for the States and the Commonwealth. The facts are very significant from the national point of view, and call for serious consideration. To appreciate the situation properly, it should be remembered that, normally, the increase of births and also of marriages will be similar to the increase of population. Although the marriage curve shews a falling off in marriages after 1891 (see page 106), it shews a recovery in 1894, and, with the exception of a small fall for 1903, it continually advanced until 1915. In 1916, 1917, and 1918 a heavy falling off was recorded, unquestionably owing to the European War. There was a rapid recovery in 1919 and 1920, the figures for the latter year being the highest ever recorded. The same characteristic is not seen in the curve of births, which, from 1904 onwards, rose continually to 1914, when there was a decline to 1919.

ACTUAL BIRTHS, DEATHS, AND MARRIAGES

EXPERIENCED IN THE COMMONWEALTH DURING THE YEARS 1890 TO 1920, COMPARED WITH THE NUMBER THAT WOULD HAVE OCCURRED IF THE RATES OF 1890 HAD REMAINED IN OPERATION.

Year.	Births.		Deaths.		Marriages.	
	Actual.	Number of Births that would have been experienced if the 1890 birth rate had been in operation.	Actual.	Number of Deaths that would have been experienced if the 1890 death rate had been in operation.	Actual.	Number of Marriages that would have been experienced if the 1890 marriage rate had been in operation.
1890 ..	108,683		44,449		23,725	
1891 ..	110,187	111,802	47,430	45,737	23,862	24,419
1892 ..	110,158	114,502	42,268	46,842	22,049	25,009
1893 ..	109,322	116,617	45,801	47,707	20,631	25,470
1894 ..	104,660	118,734	42,958	48,573	20,625	25,933
1895 ..	105,084	111,002	43,080	49,501	21,564	26,428
1896 ..	100,134	123,212	45,202	50,405	23,068	26,911
1897 ..	101,137	125,419	43,447	51,308	23,993	27,393
1898 ..	98,845	127,371	51,406	52,106	24,472	27,819
1899 ..	100,638	129,088	47,629	52,800	25,958	28,194
1900 ..	102,221	130,848	44,060	53,529	27,101	28,579
1901 ..	102,945	132,599	46,330	54,245	27,753	28,961
1902 ..	102,776	134,603	48,078	55,065	27,926	29,399
1903 ..	98,443	136,189	47,293	55,714	25,977	29,745
1904 ..	104,113	137,917	43,672	56,420	27,682	30,122
1905 ..	104,941	139,959	43,514	57,256	29,004	30,569
1906 ..	107,890	142,030	44,333	58,103	30,410	31,021
1907 ..	110,347	144,248	45,305	59,011	32,470	31,505
1908 ..	111,545	148,720	46,426	60,022	32,551	32,045
1909 ..	114,071	149,526	44,172	61,170	33,775	32,658
1910 ..	116,801	152,869	45,590	62,537	36,592	33,387
1911 ..	122,193	157,072	47,869	64,257	39,482	34,306
1912 ..	133,088	162,477	52,177	66,468	42,147	35,487
1913 ..	135,714	168,032	51,789	68,740	41,594	36,700
1914 ..	137,983	172,073	51,720	70,394	43,311	37,583
1915 ..	134,871	173,159	52,782	70,838	45,224	37,820
1916 ..	131,426	171,654	54,197	70,222	40,289	37,491
1917 ..	129,965	171,484	48,029	70,153	33,666	37,464
1918 ..	125,739	174,217	50,249	71,251	33,141	38,031
1919 ..	122,290	179,548	65,930	73,431	40,540	39,195
1920 ..	136,406	185,337	56,289	75,820	51,552	40,490

The foregoing table shews the number of births, marriages, and deaths which would have been experienced had the rate for 1890 continued, and reveals the significance of the facts disclosed by the curves. It may be remarked that the death rate has greatly improved, and among other countries Australia stands in a very favourable position in this respect. At the same time the decline in the marriage rate, overtaken once more in 1907, and the still more serious decline in the birth rate, in a country but sparsely populated, have an obvious and most important bearing on the national future, and on the extent to which it is desirable to promote immigration.

2. **Graphs of Annual Births, Commonwealth and States** (page 105).—A striking feature of the graphs of births is the practically continuous increase in the number of births exhibited in the graph for the Commonwealth from 1860 to 1891, and the marked variations of subsequent years. As the curve clearly shews, a turning point in the number of births occurred in 1891, whilst, as regards the separate States, New South Wales and Tasmania date their decline in number from 1893, Victoria from 1891, and Queensland from 1890. In South Australia the corresponding decline took place as early as 1885, while in Western Australia the increase in number of births has been practically continuous to 1913.

It is of special interest to note the decline in births associated with the commercial crisis of 1891–3, also that occurring in 1903, an accompaniment of the severe drought of that period.

In the case of New South Wales the graph crosses that of Victoria in 1879, *i.e.*, the births for that year were sensibly identical in the two States. A fairly continuous increase was experienced in the former State from 1860 to 1893, the only marked fluctuation being a sudden decline in 1889 and an equally rapid recovery in 1890. From 1893 to 1898 a somewhat rapid decline again took place, succeeded by a rise, the continuity of which was broken only by a sharp decline in 1903 and recovery in 1904. From 1904 to 1914 there was a gradual rise, followed by a decline which lasted till 1919. The number of births registered in 1920 in New South Wales was the highest on record.

In the case of Victoria the graph shews the increase between 1860 and 1880 to have been comparatively slight, the curve being a gradual rise, with fluctuations more or less marked to 1873, and a subsequent decline. From 1880 to 1891 the increase in the number of births is seen to be very rapid and practically continuous, while from 1891 to 1898 an equally sharp and continuous decline was experienced. A further rise and fall took place between 1898 and 1903, succeeded by a continuous rise from the last-mentioned year to 1907, and a slight fall in 1908, followed by a recovery in 1909. A slight fall in 1910 was followed by a continuous rise to 1914, since which year a continuous decline till 1919 was experienced. There was a substantial increase in the number of registrations during 1920.

Starting in 1860 with a lower number of births than any State except Western Australia, the Queensland graph shows that the births increased somewhat rapidly until 1867. The equality in the number of births in Queensland and Tasmania in 1864 is shewn by the Queensland curve crossing the Tasmanian curve at the line for that year. From 1867 to 1882 a continuous though somewhat less rapid increase was experienced, followed by a very rapid rise to 1890, in which year Queensland's maximum number of births prior to 1909 was recorded. The South Australian graph is crossed by that of Queensland at the year 1885. From 1890 onwards to 1908 the number of births fluctuated somewhat, but, on the whole, retained a practically stationary position at a height rather less than that of 1890. The most serious variation was a sudden fall in 1903, the drought year, and rapid recovery in 1904, with a further fall in 1905, and a continuous rise from 1906 to 1915. In 1916 there was a sudden fall, followed by a rapid rise in 1917, with another fall during 1918 and 1919. The number registered during 1920 has not been exceeded.

The South Australian graph shews a slow but practically continuous rise from 1860 to 1885. This rise is followed by a slow but fluctuating decline to 1903, and a slight recovery to 1914. In 1915, 1917 and 1919 there were declines and in 1916, 1918 and

The Western Australian curve indicates that an increase, which was practically continuous but very slow, took place from 1860 to 1884, and that a somewhat quicker rate of increase, experienced from 1884 to 1896, was succeeded by a still more rapid and very satisfactory rate of increase from 1896 to 1906. A slight fall was apparent to 1910, followed by a rapid rise to 1913. From 1913 to 1919 there was a continuous decline, but this was followed by a recovery in 1920.

The Tasmanian curve may be regarded as made up of five portions, of which the first, from 1860 to 1877, represents a period of very slight variation, with, on the whole, an increase; the second, from 1877 to 1884, a period of continuous and moderately rapid increase; the third, from 1884 to 1893, a period of rapid increase; the fourth, from 1893 to 1898, a period of continuous but slow decrease; and the fifth, from 1898 to 1914, a period of steady recovery. The years 1915 to 1918 were years of decline, but 1919 and 1920 were characterised by increase.

It will be seen that the years in which the highest points were reached by the several curves are as follows:—

State ..	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Year ..	1920	1891	1920	1914	1913	1914	1914

3. **Graphs of Annual Marriages, Commonwealth and States** (page 106).—The Commonwealth marriage graph from 1860 to 1885 reveals a moderate but somewhat fluctuating increase in the annual number of marriages between 1860 and 1871, a more rapid increase between 1871 and 1879, and a still more rapid increase between 1879 and 1885. From 1885 to 1891 the numbers continued to increase, but with marked fluctuations in magnitude. The financial crisis associated with the period subsequent to the latter year was accompanied by a strongly-marked decline in the number of marriages, which reached its lowest point in 1894. From that year onwards a fairly rapid recovery was effected, the record for 1891 being exceeded by that of 1897. This progress was maintained until 1902, when the severe drought of that and the succeeding year was collateral with a rapid fall in the number of marriages. An equally rapid recovery, however, has since taken place, and the number of marriages in the Commonwealth during 1915 was greater than in any preceding year. In 1916, 1917, and 1918, as already mentioned, there was a heavy falling off. In 1919 and 1920 a rapid recovery took place, with the result that the number recorded during the latter year was the highest on record.

4. **Graphs of Annual Deaths, Commonwealth and States** (page 107).—The curves showing the progression of the annual number of deaths indicate clearly that the periods for which exceptionally large numbers of deaths occurred were :—(*a*) 1866–7, (*b*) 1875–6, (*c*) 1884–5, (*d*) 1889–1891, (*e*) 1893, (*f*) 1898, (*g*) 1902–3, (*h*) 1916, (*i*) 1919, and (*j*) 1920. It is remarkable that in each of the periods specified the phenomenon of a relatively high number of deaths was experienced in the majority of the States. Thus, as regards 1866–7, all the States except Western Australia and Tasmania were so affected; in 1875–6 all except Western Australia; in 1884–5 all were affected; in 1889 all except Western Australia and South Australia; in 1891 all except Queensland; whilst in 1893, 1898, and 1902–3 all were affected. In 1916 all States except Queensland were affected, and in 1919 each State shewed a large increase owing to the prevalence of influenza. The fact that the periods of high death rates have been practically identical in the several States furnishes an indication that the excessive mortality has been due to a considerable extent to some common cause operating throughout the Commonwealth.

It may be noted as curious that periods of heavy mortality have occurred at intervals of approximately nine years, viz. :—1866–7, 1875–6, 1884–5, 1893, and 1902–3. There are, however, two marked increases between the third and fourth dates, and one between the fourth and fifth.

Periods in which the number of deaths was exceptionally low are far less clearly defined than those in which the number was high, and the agreement amongst the States is also less complete. The principal periods of low mortality may be said to be 1861, 1869–71, 1879, 1892, 1897, 1900, 1904–5, 1909, 1914. In 1917 there were marked declines in all the States, succeeded in 1918 by less marked increases, and in 1919 by large increases, for the reason already stated.

5. Graphs of Annual Birth, Death, and Marriage Rates and of Rate of Natural Increase—Commonwealth (page 108).—(i) *General.* These graphs represent the number of births, deaths, and marriages, and the excess of births over deaths (natural increase) per 1,000 of the population of the Commonwealth, for each of the years 1860 to 1920.

(ii) *Births.* In the case of births, the graph indicates a well marked decline in rate during the period, and represents a fall from 42.56 per 1000 of population in 1860 to 23.78 per 1000 in 1919. This enormous reduction has been subject to small fluctuations during the period under review, but may, on the whole, be said to have been in evidence throughout. There are, however, two periods of arrested decline noticeable, one from 1877 to 1890, and the other from 1898 to the present time. The course of the graph thus indicates a rapid fall from 42.56 in 1860 to 34.99 in 1877, succeeded by a fluctuating but, on the whole, fairly stationary period to 34.98 in 1890, then a fall even more rapid to 27.15 in 1898, and a further comparatively stationary period to 23.78 in 1919. The lowest point reached, until 1919, viz., 23.78, was attained in 1903, the year in which the Commonwealth suffered severely from the worst drought it has ever experienced. From 1903 to 1912 there was an advance in the rate, followed by a decline to 1919. A recovery to 25.74 took place in 1920. A declining birth rate is usually due to complex causes, amongst which the variations in the age constitution of the population, and the adoption of preventive measures, are generally considered the most potent. The highest birth rate recorded was 43.27 in 1862.

(iii) *Deaths.* The three graphs relating to deaths furnish particulars concerning the rates experienced during the period amongst males and females separately, and in the population as a whole, the latter occupying naturally a position between the other two. Throughout the period the rate for males has largely exceeded that for females, but the fluctuations in the two rates have synchronised remarkably, indicating that the conditions which have been responsible for the marked variations which have occurred from time to time have affected males and females alike. On the whole, the graphs furnish clear evidence of a satisfactory decline in the general death rate of the Commonwealth, a fall having taken place from 20.86 in 1860 to 10.66 in 1915. In 1916 there was a slight rise to 11.04, followed in 1917 by a fall to 9.80, the lowest rate yet recorded in the Commonwealth as a whole. In 1918 there was a slight rise to 10.09 followed by a rise to 12.82 in 1919. The rate for 1920 was 10.62. The graphical representation of the death rates brings into prominence six years in which the rates were exceptionally high when compared with those of adjacent years. These years are 1860, 1866, 1875, 1884, 1898, and 1919. The principal cause of the excessive rate of 1860 was the prevalence in that year of measles, scarlatina, and diphtheria, while the high rates of 1866, 1875, and 1898 were also largely due to epidemics of measles. Prior to 1892, when a rate of 12.91 was experienced, the lowest general death rate for the Commonwealth was that of 1871, viz., 13.24. The highest male death rate for the period was 20.97 in 1860, and the lowest 11.47 in 1917. For females the highest was 20.71 in 1860, and the lowest 8.18 in 1917. The difference between the male and female rate has, since 1869, been fairly constant, and has ranged between 1.97 and 3.68, with a mean value of about 2.7.

(iv) *Marriages.* In the case of the graph representing marriage rates, the fluctuations are less abrupt than in the case of the birth rate and death rate graphs, and the rate for 1920, 9.73, the highest ever recorded, does not differ very considerably from that of 1860, which was 8.42. The lowest marriage rate for the period was that of 1894, viz., 6.08, marking the culmination of the commercial and financial depression indicated by the declining rates from 1888 onwards. From 1894 to 1915 a satisfactory increase has been in evidence, disturbed only by the sharp decline which, in 1903, accompanied the severe drought experienced in the Commonwealth in that year. In 1916, 1917, and 1918 the rate declined to 8.21, 6.87, and 6.65 respectively, but increased to 9.73 in 1920.

(v) *Natural Increase.* This graph, which represents the excess of births over deaths per 1000 of population, exhibits marked fluctuations arising from the combined fluctuations in birth and death rates. Thus, corresponding to the high death rates of 1860, 1866, 1875, 1898, and 1919 there are exceptionally low rates of natural increase, accentuated in the last-mentioned year by a comparatively low birth rate. A combination of low birth rate and comparatively high death rate was also responsible for the very low rate of natural increase in 1903. The highest rate of natural increase for the period was 26.58 in 1864, and the lowest 10.96 in 1919.

6. Graphs of Annual Birth Rates—States (page 109).—These graphs furnish for the several States information similar to that supplied in the graph on page 108 for the Commonwealth as a whole. It will be seen that in every case the total effect has been an extensive decline in rate, subject to very marked fluctuations. In all the States the period from 1875 to 1885 was one of arrested decline, if not of actual advance, in the birth rate. With the exception of a very low rate accompanying the drought in 1903, the variations in any of the States since 1901 have not been very marked, and in most cases a slight tendency to increase is in evidence up to 1913. From 1914 onwards decreases have been experienced.

The highest birth rates during the period were as follows:—New South Wales (1864), 44.00; Victoria (1862), 44.71; Queensland (1860), 47.93; South Australia (1862), 45.44; Western Australia (1860), 38.96; and Tasmania (1884), 36.63. The following were the lowest rates for the period:—New South Wales (1919), 24.68; Victoria (1919), 21.56; Queensland (1903), 24.53; South Australia (1903), 23.84; Western Australia (1919), 21.44; Tasmania (1919), 25.12.

7. Graphs of Annual Death Rates—States (page 109).—These graphs furnish for the several States similar information to that given for the Commonwealth as a whole in the diagram on page 108, and indicate in each case a satisfactory decline in death rate. It may be noted that an exceptionally high death rate was experienced in all the States in 1875, and that a similar uniformity, though on a smaller scale, is observable for the year 1898, the principal cause in each case having been an epidemic of measles. The highest death rates experienced during the period were as follows:—New South Wales (1867), 19.79; Victoria (1860), 22.77; Queensland (1866), 25.96; South Australia, (1875), 19.97; Western Australia (1884), 21.54; and Tasmania (1875), 19.99. The following were the lowest death rates for the period:—New South Wales (1917), 9.56; Victoria (1917), 10.36; Queensland (1906), 9.50; South Australia (1909), 9.74; Western Australia (1917), 8.97; and Tasmania (1918), 8.84.

8. Graphs shewing Variations in Annual Death Rates from Month to Month.—The graphs on pages 110 and 111 shew for the Commonwealth as a whole and for each of the six States the annual death rates for males, females, and persons calculated for equalised months, and the infantile death rate, calculated in the same way, also distinguishing males, females, and persons. Further particulars in regard to these graphs will be found on pages 127 and 128.

SECTION VI.

LAND TENURE AND SETTLEMENT.

§ 1. Introduction and Early History.

1. **Introduction.**—A comprehensive description, in a classified form, of the land tenure systems of the several States has been given in preceding issues of this book; see especially Year Book No. 4 (pp. 235 to 333). The details of that description have been necessarily condensed in the present issue, and for more complete information for past years, reference may therefore be made to Year Book No. 4. The historical matter dealing with the development of land legislation in the individual States may be found in Year Book No. 2 (pp. 263 to 272), and in a more condensed form in Year Books No. 3 (pp. 245 to 254), and No. 4 (pp. 235 to 244).

§ 2. Land Legislation in Individual States.

1. **New South Wales.**—(i) *Acts now in Force.* The Crown Lands Act of 1884 and the supplementary Act of 1889 (now incorporated in the Crown Lands Consolidation Act 1913), were passed chiefly for the purpose of putting an end to speculative selection without *bona fide* intention of settlement. Pastoral leases were required to be surrendered to the Crown and divided into two equal parts, one of which was returned to the lessee under a lease with a fixity of tenure for a term of years, the other half the lessee was allowed to hold under an annual occupation license, but this half was always open for selection.

Nevertheless accumulation of land into large estates continued, and settlement proceeded slowly. Entirely new principles of agrarian legislation have been embodied in Crown Lands Acts passed in the years 1895 to 1919, the Closer Settlement Acts 1904 to 1919, and the Closer Settlement Promotion Act 1910, now incorporated in Closer Settlement Amendment Act 1918, which offer *bona fide* settlers special inducements by the introduction of new forms of tenure on easy terms and conditions.

(ii) *The Western Lands Acts.* All Crown lands in the Western Division of New South Wales are now subject to the special provisions of the Western Lands Acts 1901 and 1905, and amendments in 1908, 1909, 1918, and 1919. All leases or occupation licenses could be brought within the provisions of the Western Lands Act by application before the 30th June, 1902. Otherwise the leases or licenses were dealt with by the Board as if the Act had not been passed. All leases issued or brought under the provisions of the Western Lands Acts expire on the 30th June, 1943, except in cases where part of the land leased is withdrawn for the purpose of sale by auction, or to provide small holdings, in which case an extension of the term of lease of the remainder may be granted as compensation for the part withdrawn.

2. **Victoria.**—(i) *Acts now in Force.* The Land Act 1915 deals with the whole system of land occupation and alienation in this State. Closer Settlement was provided for by the Land Acts of 1898 and 1901 and amendments, until the introduction of the Closer Settlement Act 1904, amended in 1906, 1907, 1909, 1910, 1911 and 1912, and now included in the Closer Settlement Act 1915 (Discharged Soldiers' Settlement Act 1917). Other special forms of tenure have been provided for by the Settlement on Lands Act 1893 and the Small Improved Holdings Act 1906; these, however, are now embraced in the Land Act and Closer Settlement Act respectively.

(ii) *Mallee Lands.* The lands in the Mallee territory, comprising an area of about 11,000,000 acres in the north-western district of the State, can be cleared at a moderate expenditure. An extension of railway facilities and of successful systems of water supply should bring this territory into greater prominence as a field for agricultural enterprise. About 4,500,000 acres are unalienated and available for occupation.

3. **Queensland.**—*Acts now in Force.* The Acts now in force are the Land Acts 1910 to 1920, the Closer Settlement Acts 1906–1917, and the Discharged Soldiers' Settlement Acts 1917 to 1920. The first-mentioned Acts substitute perpetual leasehold tenures for freeholding tenures in the case of all new selections and auction purchases, but conversion of existing holdings to the leasehold tenure is optional with the selector. The last-mentioned Acts provide for the settlement of discharged soldiers on Crown land, land acquired under the Closer Settlement Acts, or land specially acquired for soldier settlement.

4. **South Australia.**—*Acts now in Force.* The Crown Lands Act 1915 repealed and consolidated previous Acts, and also consolidated the Closer Settlement and Village Settlement Acts. The Pastoral Act 1904 controls the pastoral occupation of lands, and the Irrigation and Reclaimed Land Act of 1914 provides for leases of reclaimed and irrigable lands.

5. **Western Australia.**—*Acts now in Force.* The Land Act 1898, which consolidated previous legislation as to the management of Crown lands, has in turn been amended at various times, and, with such amendments, is now in force. The Discharged Soldiers' Settlement Act 1918 provides for the settlement of discharged soldiers and sailors on the land. The principle of repurchasing Crown lands for the purpose of Closer Settlement was introduced by the Agricultural Lands Purchase Acts 1896 to 1904; these Acts were repealed and consolidated by the Agricultural Lands Purchase Act 1909.

6. **Tasmania.**—*Acts now in Force.* The law relating to land tenure and settlement is now consolidated in the Crown Lands Act 1911, the Closer Settlement Act 1913, and the Returned Soldiers' Settlement Act 1916 and amendments.

7. **Northern Territory.**—Prior to the transfer of the Northern Territory to the Commonwealth on the 1st January, 1911, the sale and occupation of lands in the Territory were regulated by the Northern Territory Crown Lands Act 1890, the Northern Territory Land Act 1899, and the Northern Territory Tropical Products Act 1904, but from that date the further alienation and occupation of land in the Territory were suspended, pending a complete reorganisation of the system of land settlement by the Commonwealth Government. In December, 1912, an ordinance, cited as the Crown Lands Ordinance 1912, dealing with this question, was made, by which the conditions of land tenure and settlement in the Territory are now determined. Under the ordinance and its amendments and regulations no further alienation of Crown lands is permitted, unless such alienation is in pursuance of existing agreements.

8. **Administration and Classification of Crown Lands.**—In each of the States of the Commonwealth there is now a Lands Department under the direction of a responsible Cabinet Minister, who is charged generally with the administration of the Acts relating to the alienation, occupation and management of Crown lands. The administrative functions of most of the Lands Departments are to some extent decentralised by the division of the States into what are usually termed Land Districts, in each of which there is a Lands Office, under the management of a land officer, who deals with applications for selections and other matters generally appertaining to the administration of the Acts within the particular district. In some of the States there is also a local Land Board or a Commissioner for each district or group of districts. In the Northern Territory the administration of the regulations relating to the occupation and management of Crown lands is in the hands of a Classification Board, consisting of the Director of Lands and two other officers appointed by the Administrator.

In most of the States, Crown lands are classified according to their situation, the suitability of the soil for particular purposes, and the prevailing climatic and other conditions. The modes of tenure under the Acts, as well as the amount of purchase money or rent and the conditions as to improvements and residence, may vary in each State according to the classification of the land. The administration of certain special Acts relating to Crown lands has in some cases been placed in the hands of a Board under the general supervision of the Minister; for such purpose, for instance, are constituted the Western Lands Board in New South Wales, the Lands Purchase and Management Board in Victoria, and the Closer Settlement Board in Tasmania.

In each of the States and in the Northern Territory there is also a Mines Department, which is empowered under the several Acts relating to mining to grant leases and licenses of Crown lands for mining and auxiliary purposes. Such leases and licenses are more particularly referred to in a later part of this section. (See § 9.)

Full information respecting lands available for settlement or on any matter connected with the selection of holdings may be obtained from the Commonwealth representative in London, from the Agents-General of the respective States in London, or from the Lands Departments of the various States in the Commonwealth. The administration and classification of Crown lands in each State were more fully dealt with in Year Book No. 2 (pp. 273–6).

§ 3. Tenures under which Crown Lands may be Alienated or Occupied.

1. **Introduction.**—Crown lands may now ordinarily be alienated either by free grant (in trust for certain specified purposes), by direct sale and purchase (which may be either by agreement or at auction), or by conditional sale and purchase. Crown lands may be occupied in the several States under a variety of forms of leases and licenses, issued both by the Lands and the Mines Departments.

2. ***Classification of Tenures.***—The tabular statement given on pages 161 and 162 shews the several tenures under which Crown lands may be acquired or occupied in each State of the Commonwealth. The forms of tenure are dealt with individually in succeeding parts of this section.

(i) *Free Grants, Reservations, and Dedications.* The modes of alienation given in this category include all free grants either of the fee simple or of leases of Crown lands. "Free" homesteads in Queensland and Western Australia are not included in this class, these tenures being free in the sense that no purchase money is payable, but not free from residential and improvement conditions. Reservation and dedication, which are ordinarily conditions precedent to the issue of free grants, are also dealt with therein.

(ii) *Sales by Auction and Special Sales.* This class of tenure includes all methods by which the freehold of Crown lands may be obtained (exclusive of sales under the Closer Settlement and kindred Acts) for cash or by deferred payments, and in which the only condition for the issue of the grant is the payment of the purchase money.

(iii) *Conditional Purchases.* In this class are included all tenures (except tenures under Closer Settlement and kindred Acts) in which the issue of the grant is governed by the fulfilment of certain conditions (as to residence or improvements) other than, or in addition to, that of the payment of purchase money.

(iv) *Leases and Licenses.* This class includes all forms of occupation of Crown lands (other than under Closer Settlement and kindred Acts) for a term of years under leases and licenses issued by the Lands Departments. As the terms indicate, the freehold cannot be obtained under these forms of tenure.

CLASSIFICATION OF TENURES UNDER WHICH CROWN LANDS MAY BE ALIENATED OR OCCUPIED.

New South Wales.	Victoria.	Queensland.
FREE GRANTS, RESERVATIONS, AND DEDICATIONS.		
Free grants in trust Reservations and dedications under Crown Lands Consolidation Act 1913 and Mining Act 1906	Free grants in trust and reservations under Land Act 1915	Free grants in trust Reservations under Land Act 1910 and under State Forests and National Parks Act 1906
SALES BY AUCTION AND SPECIAL SALES.		
Auction sales for cash or on credit After-auction sales Special sales Improvement purchases Purchases of suburban holdings, residential leases, week-end leases Returned Soldiers' special holdings	Auction sales for cash or on credit Special sales	*Auction sales for cash or on credit *After-auction sales *Special sales *Unconditional selections
CONDITIONAL PURCHASES.		
Residential or non-residential conditional purchases Conversion of conditional purchase leases, homestead selections, homestead farms, settlement leases, Crown leases, special leases, church and school lands leases Homestead selections	Agricultural allotments, residential or non-residential Grazing allotments, residential or non-residential Selection from grazing area, perpetual or auriferous leases Selection from pastoral leases Mallee agricultural licenses Murray settlement leases Selection purchase leases	*Agricultural farms *Agricultural homesteads *Prickly pear selections *Free homesteads
LEASES AND LICENSES.		
Conditional leases Conditional purchase leases Settlement leases Improvement leases Annual leases Residential leases Special leases Snow leases Pastoral leases Scrub leases Inferior lands leases Occupation licenses Western lands leases Homestead farms Suburban holdings Crown leases Leases in Irrigation Areas Week-end leases Returned Soldiers' special holdings	Grazing area leases Perpetual leases Mallee leases Licenses of auriferous lands Leases of swamp or reclaimed lands Grazing licenses Leases and licenses for other than pastoral or agricultural purposes State forest and timber reserve licenses	Grazing homesteads Grazing farms Occupation licenses Special leases Perpetual lease selections Perpetual lease prickly pear selections Pastoral leases Preferential pastoral leases Auction perpetual leases (town, suburban, or country) After-auction ditto Non-competitive leases
CLOSER SETTLEMENT SALES, LEASES AND LICENSES.		
Sales by auction Settlement purchase Annual leases Labour settlements	Special sales	*Sales by auction *Agricultural farms *Unconditional selections Auction perpetual leases Perpetual lease selections
MINES DEPARTMENTS' LEASES AND LICENSES.		
Miners' rights Business licenses Authorities to prospect Leases	Mining leases Special licenses Miners' rights Business and residence licenses	Miners' rights Mining leases and licenses Miners' homestead leases

* Since 1st January, 1917, no new sales or selections under these tenures have been made, nor may any further areas be offered under these tenures.

CLASSIFICATION OF TENURES UNDER WHICH CROWN LANDS MAY BE ALIENATED OR OCCUPIED.

South Australia.	Western Australia.	Tasmania.
FREE GRANTS, RESERVATIONS, AND DEDICATIONS.		
Free grants in trust Reservations and dedications under Crown Lands Act 1915 Artesian leases	Free grants in trust and free leases Reservations under Lands Acts 1898 and 1906	Free leases Reservations under Crown Lands Act 1911
SALES BY AUCTION AND SPECIAL SALES.		
Auction sales for cash After-auction sales Sales for special purposes	Auction sales for cash (The right to purchase the freehold or to lease town and suburban lots is sold by auction)	Auction sales for cash or on credit After-auction sales Special sales of residence or business allotments
CONDITIONAL PURCHASES.		
Agreements to purchase Special agreements under Pinnaroo Railway Act	Conditional purchase, residential or non-residential Conditional purchase by direct payment Conditional purchase of small blocks Homestead farms Conditional auction sales Workingmen's blocks	Selection of rural lands Homestead areas Selection in mining areas Conditional auction sales
LEASES AND LICENSES.		
Perpetual leases Miscellaneous leases Miscellaneous grazing and cultivation leases Irrigation and reclaimed land leases Special licenses Pastoral leases Leases with right of purchase	Pastoral leases Special leases Quarrying licenses	Grazing leases Miscellaneous leases Timber licenses and leases Residence licenses Occupation licenses Temporary licenses
CLOSER SETTLEMENT SALES, LEASES, AND LICENSES.		
Sales by auction Agreements to purchase Miscellaneous leases Irrigation and reclaimed area leases Village settlements Homestead blocks	Sales by auction Conditional purchases	Special sales Leases with right of purchase
MINES DEPARTMENTS' LEASES AND LICENSES.		
Miners' rights Mining leases Miscellaneous leases Business licenses Occupation licenses Mineral claims Search licenses	Miners' rights Mining leases Miners' homestead leases	Prospectors' licenses Miners' rights Mining leases Miscellaneous licenses

NOTE.—*Northern Territory.*—By the Crown Lands Ordinance of 1912 and its amendments, the only form of tenure under which land may be held in the Northern Territory, exclusive of land held under pre-existing rights, is that of leasehold. See § 7 of this section.

(v) *Closer Settlement Sales, Leases, and Licenses.* In this division are included all forms of tenure provided for under the various Closer Settlement Acts, and under kindred Acts, such as the Village Settlements and Small Holdings Acts.

(vi) *Mines Departments' Leases and Licenses.* The tenures specified include all methods in which Crown lands may be occupied for mining and auxiliary purposes under leases and licenses issued by the Mines Departments in the several States.

3. Limitation of Tenures in New South Wales.—In October, 1910, it was officially stated that it was the policy of the Government to discontinue the granting of the freehold of Crown lands. Under the Crown Lands Act 1912 this policy was partially given effect to by the discontinuance of the disposal of Crown lands by conditional purchase or as homestead selections, and by the institution of several new forms of tenure, viz., homestead farms, suburban holdings, irrigation farms, and Crown leases.

The first three are leases in perpetuity, while the term of a Crown lease is 45 years.

These four tenures did not then carry any rights of conversion, but by subsequent enactments the first and last mentioned may now be converted into other tenures, and ultimately into freehold, and the holder of a suburban holding may under certain conditions be permitted to purchase same.

4. Tenure of Lands by Aliens.—In the States of New South Wales, Queensland, South Australia, and Western Australia, restrictions are imposed upon the tenure of lands by aliens (*i.e.*, persons other than natural-born or naturalized British subjects). In Victoria and Tasmania there are no such restrictions.

(i) *New South Wales.* Under the Crown Lands Consolidation Act 1913, an alien is not qualified to apply for an original homestead selection, original conditional purchase lease, settlement lease, original homestead lease, or original conditional purchase, unless he has resided in New South Wales for one year, and at the time of making application lodges a declaration of his intention to become naturalized within five years. If he fails to become naturalized within that period, the land is forfeited. This residential limit of twelve months does not, however, apply to applicants for homestead farms, Crown leases, suburban holdings, and leases within irrigation areas, but any alien who becomes the holder of any of these tenures must become naturalized within three years after his becoming such holder. Failure to comply with this regulation involves forfeiture of such holding, together with all improvements thereon.

(ii) *Victoria.* Under the Supreme Court Act 1915 (section 3), every alien friend resident in Victoria may acquire, either by grant from the Crown or otherwise, both real and personal property.

(iii) *Queensland.* Under the Land Act 1910 (section 59*b* and 62) an alien cannot apply for any land in Queensland unless he obtains a certificate that he is able to read and write from dictation words in such language as the Minister for Lands may direct. If he acquire a selection he must within five years of such acquisition become a naturalized subject.

(iv) *South Australia.* In South Australia, Asiatics are disqualified from holding perpetual leases of lands in irrigation areas under section 19 of the Irrigation and Reclaimed Lands Act 1914.

(v) *Western Australia.* Every application to acquire Crown lands, whether by a British subject or an alien, is subject to the approval of the Minister for Lands, with an appeal to the Governor in Council.

(vi) *Tasmania.* By the Aliens Act 1913 all restrictions on the holding of real estate by aliens are removed.

(vii) *Northern Territory.* Leases are not granted to aliens, but they may hold occupation licenses for twelve months, subject to renewal, provided the land is not required for other purposes. Under the Mining Act 1903 Asiatic aliens are disqualified from holding gold or mineral leases. Naturalized British subjects may hold leases.

§ 4. Free Grants, Reservations, and Dedications.

1. **Introduction.**—Although free grants of Crown lands were virtually abolished as far back as 1831, the Land Acts of all the States now contain provisions under which the free alienation or occupation of Crown lands for certain specified purposes—comprising generally charitable, educational, and public purposes—is allowed. In all the States, also, Crown lands may be excepted from sale and reserved to the Crown or dedicated for various public and special purposes. Generally, reservation and dedication are conditions precedent to the issue of a free grant. In addition to reservations of a permanent nature, temporary reservations are also made, but these are, as a rule, subject to considerable fluctuations in area by reason of withdrawals, renotifications, and fresh reservations.

The following table shews the area for which free grants were issued and the areas permanently reserved or dedicated in each State during 1901, and from 1915 to 1919 inclusive :—

PARTICULARS OF FREE GRANTS, RESERVATIONS, AND DEDICATIONS, 1901 AND 1915 TO 1919.

Year.	N.S.W.	Victoria.*	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
			FREE GRANTS.				
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901 ..	282	7	425	5	156	10†	885
1915 ..	1,596	96	1,271	22	3	172	3,160
1916 ..	1,670	26	18	6,556	1	17	8,297
1917 ..	2,066	51	18	250	7	14‡	2,406
1918 ..	926	25	33	309	Nil	5	1,298
1919 ..	1,118	1,349	Nil	344	Nil	2	2,813
			RESERVATIONS AND DEDICATIONS.				
1901 ..	1,595	19,278	811,200	§	189,856	4,231	1,026,160‖
1915 ..	512	2,280	103,494	46,738	173,155	27,066	353,245
1916 ..	2,426	6,482¶	8,251	21,390	157,601	1,602	197,752
1917 ..	779	7,037	906,008	10,312	154,110	6,717	1,085,563
1918 ..	501	1,581	−142,081**	12,780	274,391	10,453‡	299,706††
1919 ..	381	960	−68,647**	..	273,392	22,053	296,786††

* Including both permanent and temporary reservations and dedications.
† Free leases. ‡ These are free leases for 99 years. § Not available.
‖ Exclusive of South Australia. ¶ Including 222 acres reserved for recreation grounds.
** The minus sign (−) indicates area of reserves cancelled in excess of areas set apart as reserves.
†† Omitting Queensland.

2. **New South Wales.**—Crown lands may be reserved or dedicated for certain charitable, educational, and public purposes specified. No promises of dedication for religious purposes were made after the 11th May, 1880, on which date a resolution against any further such grants was passed by the Legislative Assembly. Volunteer Land Office Certificates ceased to be operative after the 31st January, 1912. All cases have now been dealt with.

(i) *Reservations.* In addition to the reservations referred to above, Crown lands may also be temporarily reserved as sites for cities, towns, or villages, and may be reserved for mining purposes. Crown lands within one mile of any made or projected railway may be temporarily reserved from sale, and any Crown lands may be reserved from sale for the preservation and growth of timber. Further, Crown lands may be reserved by notification in the *Gazette* from being sold or let upon lease or license, in such particular manner as may be specified, or may be reserved from sale or lease generally.

(ii) *Areas Granted and Reserved, 1919–20.* During the financial year 1919–20, the total area for which free grants were prepared was 641 acres, including grants of 633 acres of land resumed under the 12th clause of the Public Roads Act 1902. During the same period 693 acres were dedicated and permanently reserved, the number of separate dedications being 67.

On the 30th June, 1920, the total area temporarily reserved was 21,482,773 acres, of which 5,945,096 acres were for travelling stock, 3,598,757 acres for forest reserves, 866,215 acres for water, 1,329,423 acres for mining, and the remainder for temporary commons, railways, recreation and parks, and miscellaneous purposes.

3. **Victoria.**—Under section 10 of the Land Act 1915, the Governor is authorised to reserve Crown lands, either temporarily or permanently, from sale, lease or license, for any public purpose whatever.

During the year 1919 three free grants, comprising an area of 1,349 acres, were issued. During the same year reservations of both a permanent and temporary nature, comprising an area of 960 acres, were made; of this area 128 acres were reserved for recreation grounds.

4. **Queensland.**—Under the Land Act 1910, the Governor in Council may grant in trust, or reserve from sale, or lease, temporarily or permanently, any Crown lands required for public purposes.

(i) *Reservations.* Under section 2 of the State Forests and National Parks Act 1906, the Governor in Council may permanently reserve any Crown lands and declare them to be a State Forest or a National Park.

(ii) *Areas Granted and Reserved, 1919.* During the year 1919 no free grants were issued. During the same period the area of reserves cancelled was 68,647 acres in excess of areas set apart as reserves. The total area reserved up to the end of the year 1919 was 14,244,059 acres.

5. **South Australia.**—Under section 7 (*d*) of the Crown Lands Act 1915, the Governor is empowered to dedicate by proclamation any Crown lands for various charitable, educational and public purposes, and may, at any time after dedication, grant the fee simple of such lands to secure the use thereof for the purpose for which they were dedicated.

(i) *Reservations.* Under section 7 (*f*) of the same Act, the Governor may by proclamation reserve any Crown lands (i) for the use of aborigines, (ii) for the purposes of military defence, (iii and iv) for forest or travelling stock reserves, (v) for public recreation grounds, (vi) for railways or tramways, (vii) for park lands, and (viii) for any other purposes he may think fit.

(ii) *Artesian Leases.* Under special circumstances free leases of pastoral lands may be granted to discoverers of artesian wells.

(iii) *Areas Granted and Reserved, 1919.* During the year 1919 there were 19 free grants issued for a total area of 344 acres. During the same year reserves comprising 220,463 acres were proclaimed.

6. **Western Australia.**—Under section 39 of the Land Act 1898, as amended by section 27 of the Act of 1906, the Governor may reserve any Crown lands which may be required for religious, charitable, or public purposes. These reservations may be either temporary or permanent.

During the year 1919, no free grants were issued, while the area reserved was 273,392 acres.

7. **Tasmania.**—Under section 11 of the Crown Lands Act 1911, the Governor may reserve any Crown lands for the purposes therein specified. The lands are ordinarily leased for a period of ninety-nine years at a peppercorn rental.

During the year ending 31st December, 1919, there were 3 free leases, comprising an area of 2 acres, issued. During the same period 22,053 acres were reserved, 11,621 acres being reserved for scenic purposes, 2 acres for cemetery purposes, 25 acres for recreation purposes, 500 acres as a sanctuary for wild fowl, and 9,903 acres for other purposes. The total area reserved from sale and selection to the end of the year 1919 was 4,822,000 acres.

§ 5. Sales by Auction and Special Sales.

1. **Introduction.**—*In all the States, except Queensland since 1916 (see paragraph 4 hereunder), sales by auction of Crown lands are held from time to time. Notifications of such sales are given in the Government Gazettes together with particulars as to the upset price and conditions of sale. Excepting in the case of South Australia, where land is sold at auction for cash only, the purchase may be either for cash or on credit by deferred payments. In most of the States land may also be purchased by private contract at the upset price, when it has been offered at auction and not sold. In the case of auction sales on credit in the States of Western Australia and Tasmania, certain improvement conditions are imposed, and such sales are therefore classed for the purposes of this article among *Conditional Purchases*. (See § 6.) In most of the States comparatively small areas of Crown lands may be sold without competition under special circumstances. Sales by auction and special sales under Closer Settlement Acts are referred to in a later part of this section. (See § 8.)

2. ***New South Wales.***—Under the Crown Lands Act, lands not exceeding in the aggregate 200,000 acres for the whole State may be sold by auction during any one year. The sales are notified in the *Gazette* not less than one month before the day of sale. The upset prices may not be less than £8 an acre for town lands; £2 10s. for suburban lands; and other lands fifteen shillings. Town lands may not be sold in areas exceeding half an acre; suburban lands in areas exceeding twenty acres; and country lands in areas exceeding 640 acres. A deposit of 10 per cent. on the purchase money must be paid at the sale, and the balance in ordinary circumstances within three months. The Minister may submit land to sale on deferred payments, in which case the balance is spread over a fixed period (not exceeding 10 years) and is payable in annual instalments with 5 per cent. interest.

A fuller description of the conditions under which land may be purchased at auction may be found in the previous issues of the Year Book. (See Year Book No. 5, p. 273.)

Alienation by Auction and Special Sales. During the year ended the 30th June, 1920, the area of Crown lands sold by auction and special sales for which grants were prepared amounted to 8,627 acres, of which 5,889 acres were sold by auction in 602 lots; 673 acres were sold by after-auction sales in 433 lots: 133 acres were sold as improvement purchases in 76 lots; and 1,932 acres were sold as special purchases in 182 lots. The following table gives particulars of Crown lands alienated by auction and special sales during 1901 and for each year from 1915 to 1920:—

NEW SOUTH WALES—AUCTION AND SPECIAL SALES, 1901 AND 1915 TO 1920.

Year.	Auction and After-auction Sales.	Improvement Purchases.	Special Sales.	Total.	
				Area.	Price.
	Acres.	Acres.	Acres.	Acres.	£
1901*	49,074	43	445	49,562	116,562
1915	501†	49	1,897	2,447	36,411
1916	492	66	2,707	3,265	35,614
1917	900	39	1,120	2,059	39,967
1918	10,115	55	1,791	11,961	103,796
1919	11,228	32	2,215	13,475	81,532
1920	6,699	28	1,640	8,367	43,764

* Year ended 31st December. Subsequent years to 30th June. † Exclusive of frontages sold under the Centennial Park Sale Act.

Particulars of total areas alienated are given hereinafter. (See § 11.)

3. **Victoria.**—Lands specially classed for sale by auction, and any land in any city, town, or borough, may be sold by auction in fee simple, not exceeding 100,000 acres in any one year, at an upset price of £1 an acre, or at any higher price determined. The purchaser must pay the survey charge at the time of the sale, together with a deposit of 12½ per cent. of the whole price; the residue is payable in equal half-yearly instalments, not exceeding forty in number, according to the amount, with interest at the rate of 4 per cent. per annum.

(i) *Special Sales without Competition.* Detached strips of land not exceeding twenty acres may be sold at a valuation to the owner of the adjoining freehold in cases somewhat similar to those specified above in respect to Crown lands in New South Wales.

(ii) *Areas Sold at Auction and by Special Sales.* The following table gives particulars of auction sales and special sales for the year 1901 and from 1915 to 1919:—

VICTORIA—AUCTION AND SPECIAL SALES, 1901 AND 1915 TO 1919.

Particulars.	1901.	1915.	1916.	1917.	1918.	1919.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Country lands	4,079	818	625	615	450	336
Town and suburban lands ..	2,127	1,276	622	617	739	368
Special sales	846	1,193	814	546	1,657	318
Total	7,052	3,287	2,061	1,778	2,846	1,022

Particulars of total areas alienated are given hereinafter. (See § 11.)

4. **Queensland.**—Up to 31st December, 1916, the Minister might, with the approval of the Governor-in-Council, cause any Crown lands to be offered for sale by auction. Town or suburban lands might be under either freeholding or perpetual lease tenure. The notification specified the amount of deposit, and the term for payment of the balance of the money, which term might not exceed ten years. The upset price might not be less than £8 per acre for town lands, £2 per acre for suburban lands, and 10s. per acre for country lands. Since the close of the year 1916, however, the perpetual lease tenure only is available.

(i) *After-auction Sales.* The notification of lands for sale by auction might declare that any lands therein mentioned, which had been offered at auction but not sold or withdrawn, should be open to purchase at the upset price by the first applicant. The price might be paid in the same instalments and at the same periods as if the land had been bought at the auction.

(ii) *Special Sales without Competition.* Land might be sold without competition to the holder or holders of adjoining lands at a price to be determined by the Land Court, under circumstances similar to those specified above in the case of New South Wales. When the holder of any land proved that, owing to danger from flood or other reasons, it was unsafe to reside on his holding, he might be granted, on payment of a price determined by the Land Court, an area not exceeding ten acres out of the nearest convenient and available Crown lands. Perpetual leasehold is now an alternative tenure.

(iii) *Areas Sold at Auction, after Auction, and by Special Sales.* The following table shews the areas sold at or after auction, and by special sales, during the year 1901 and from 1915 to 1919:—

QUEENSLAND—AUCTION AND SPECIAL SALES, 1901 AND 1915 TO 1919.

(FREEHOLDING TENURES.)

Particulars.	1901.	1915.	1916.	1917.(a)	1918.(a)	1919.(a)
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Town	334	149	..	..	..	..
Suburban	793	541	..	..	..	..
Country—						..
Ordinary sales ..	52,132	2,623	..	..	..	..
Special sales	55	79	108	..	..	..
Total	53,314	3,392	108	..	..	..

(a) Freeholding tenures not granted since 31st December, 1916.

Particulars of total areas alienated are given hereinafter. (See § 11.)

During 1919 there were in Queensland auction sales, under perpetual lease, of 231 acres for town areas, 199 acres for suburban areas, and 607 acres for country areas—a total of 1,037 acres. Particulars for five years are shewn in the following table:—

QUEENSLAND—SALES OF PERPETUAL LEASES AT AUCTION, 1915 TO 1919.

Year.	Number of Lots Sold.				Area Sold.			
	Town.	Suburban.	Country.	Total.	Town.	Suburban.	Country.	Total.
					Acres.	Acres.	Acres.	Acres.
1915 ..	384*	87	..	471	158	749	..	907
1916 ..	690	292	..	982	296	1,275	..	1,571
1917 ..	279	62	125	466	107	168	2,599	2,874
1918 ..	441	168	57	666	163	428	1,218	1,809
1919 ..	660	58	40	758	231	199	607	1,037
Total ..	2,454	667	222	3,343	955	2,819	4,424	8,198

(iv) *Unconditional Selections.* This form of tenure is similar to that of a sale by auction with deferred payment. The minimum price for the land is 13s. 4d. an acre, payable in twenty annual instalments, and the maximum area granted to the applicant is 1,280 acres. A deed of grant may be obtained upon payment of the purchase money. Selection under this tenure, in common with other freeholding tenures, has now ceased.

The following table shows the number and area of unconditional selections for which applications were accepted during the year 1901 and from 1915 to 1919:—

QUEENSLAND—UNCONDITIONAL SELECTIONS, 1901 AND 1915 TO 1919.

Particulars.	1901.	1915.	1916.	1917.(a)	1918.(a)	1919.(a)
Number	151	35	8	..	..	..
Area .. .. acres	24,322	5,639	3,035	..	..	..
Rent .. .. £	1,180	213	103	..	..	..

(a) See note first table on this page.

5. South Australia.—The following lands may be sold by auction for cash:—(a) Special blocks. Any single section of Crown lands which may be surrounded by lands sold or contracted to be sold, and any section (not exceeding 100 acres in area) which may be required for the establishment of any industry. (b) Crown lands which have been offered for perpetual lease or agreement to purchase, and not taken up for two years.

(c) Town lands. (d) Suburban lands. The upset price is determined by the Commissioner, and 20 per cent. of the purchase money must be deposited at the time of sale, and the residue paid within such a time as the Commissioner may allow.

(i) *After-auction Sales.* All Crown lands except town or suburban lands offered at auction and not sold remain open for leasing or sale under agreement, or may be sold by private contract for cash at the upset price.

(ii) *Sales for Special Purposes.* The Governor may, on the application of the purchaser or lessee under any of the Crown Lands Acts, grant two acres of the land comprised in such agreement or lease to trustees, to be used for any public or charitable purposes, or he may grant not over one acre of land, comprised in such agreement or lease, as a site for a shop, mill, or post office. The purchase money for such land must be paid at the time of application.

(iii) *Areas Sold for Cash.* The following table shews the areas sold for cash during the year 1901 and from 1915 to 1919. The total areas sold under all types of sale are shewn in a later part of this section. (See § 11.)

SOUTH AUSTRALIA.—AUCTION AND SPECIAL SALES, 1901 AND 1915 TO 1919.

Year	1901.	1915.	1916.	1917.	1918.	1919.
Area in acres	11,314	29,081	30,799	36,964	29,921	38,507

6. **Western Australia.**—Surveyed town lots notified in the *Gazette* as open for sale, either to purchase outright, or to lease, are sold by public auction at a prescribed upset price. In the case of suburban lands, the purchaser must carry out certain improvements, which are more particularly referred to later. (See § 6, *Conditional Purchases.*)

Areas Sold by Auction. The following table shews the areas of town and suburban lands sold at auction during the year 1901 and from 1915 to 1920:—

WESTERN AUSTRALIA—AUCTION SALES, 1901 AND 1915 TO 1920.

Year..	1901.	1915.(a)	1916.(a)	1917.(a)	1918.(a)	1919.(a)	1920.(a)
Area sold .. Acres	856	1,396	419	543	964	277	496
Number of Allotments	1,366	353	102	144	278	137	140

(a) For the year ended 30th June.

Particulars as to total areas alienated are given in a later part of this section. (See § 11.)

7. **Tasmania.**—Any town lands may be sold at auction or by private contract, either for cash or on credit, provided that no such lands may be sold on credit if the price is less than £15. Rural lands may also be sold at auction or by private contract, but lots of first-class land may not be sold on credit if less than fifteen acres in area. In the case of sales on credit both of town and rural lands, improvement conditions are imposed, and such sales are therefore classified for the purposes of this article as *Conditional Purchases.* (See § 6.)

(i) *After-auction Sales.* All rural lands and town lands, not within five miles of any city, which have been offered at auction and not sold, may be purchased by private contract at the upset price, and subject to the conditions on which they were offered at auction.

(ii) *Sale of Land in Mining Towns.* The holder of a residence or business license, who is in occupation and is the owner of buildings and improvements upon the area licensed of a value equal to the upset price of such area, is entitled to purchase not more than half an acre in area. The areas may be sold on credit.

(iii) *Areas Sold for Cash.* The following table shews the areas sold for cash during the year 1901 and from 1915 to 1919:—

TASMANIA—AUCTION AND SPECIAL SALES, 1901 AND 1915 TO 1919.

Year	1901.	1915.	1916.	1917.	1918.	1919.
Area in acres	1,915	339	170	133	310	120

Particulars of total areas alienated are given in a later part of this section. (See § 11.)

§ 6. Conditional Purchases.

1. **Introduction.**—In all the States of the Commonwealth* the freehold of the land may be acquired under what are known as systems of conditional purchase by deferred payments of half-yearly or yearly instalments. Certain conditions, generally as to residence and improvements, have to be complied with before the freehold is granted, but these conditions are usually of a light nature and are inserted chiefly with the object of guaranteeing that the occupier will become of benefit to the community by making a reasonable effort to render his holding wealth-producing. Though there is a considerable similarity between some of the forms of tenure in the several States, the terms and conditions vary greatly in detail. As a rule a lease or license for a certain period is first issued to the selector, and upon fulfilment of the prescribed conditions and payment of the full amount of purchase-money the freehold is conveyed to him. In Queensland† and Western Australia "free" homesteads may be acquired. Although under these tenures no purchase-money is payable, the grant is conditional on the performance of residential and improvement conditions; these tenures are therefore included here with conditional purchases rather than with free grants.

2. **New South Wales.**—The following are the methods by which land may be alienated by conditional purchase:—(i) Residential conditional purchase; (ii) non-residential conditional purchase; (iii) conversion of certain holdings into conditional purchase; and (iv) homestead selections.

A description of the conditions under which land may be taken up under this form of tenure is given in previous issues of the Year Book. (See No. 6, p. 277.)

During the year ended the 30th June, 1920, deeds of grant were prepared on the completion of conditional purchases for 686,385 acres, making the total number of conditional purchases in existence at the end of the financial year 82,938 for a total area of 19,365,856 acres. The following table gives particulars of conditional purchases in 1901 and from 1915 to 1920:—

NEW SOUTH WALES.—CONDITIONAL PURCHASES, 1901 AND 1915 TO 1920.

Year.	Applications Made.		Applications Confirmed.		Areas for which Deeds have been Issued.	
	Number.	Area.	Number.	Area.	During the Year (b).	To end of Year.
		Acres.		Acres.	Acres.	Acres.
1901 ..	2,277	549,898	1,555	360,910	500,554	4,212,189
1915 (a) ..	362	47,175	287	35,249	304,012	16,264,942
1916 (a) ..	216	22,495	183	23,552	307,016	16,571,958
1917 (a) ..	168	25,761	108	13,025	357,828	16,929,786
1918 (a) ..	271	32,085	121	16,211	388,338	17,318,124
1919 (a) ..	511	75,370	201	24,911	559,779	17,877,903
1920 (a) ..	773	126,179	257	35,612	686,385	18,564,288

(a) Year ended 30th June. (b) Exclusive of exchanges under the Crown Lands Act 1895.

Further particulars as to the total areas alienated and in process of alienation are given hereinafter. (See § 11.)

* Except Queensland since 1916. † Prior to 1st January, 1917.

During the year ended 30th June, 1920, there were 13 original and 10 additional homestead selections applied for, comprising an area of 15,365 acres. During the same period the total number of applications confirmed was 8, comprising 9,690 acres, and 2,937 homestead selections and grants, comprising an area of 912,573 acres, were in existence on the 30th June, 1920. This tenure is now practically superseded by the Homestead Farm tenure. Further particulars for previous years are given in a later part of this section. (See § 11.)

3. **Victoria.**—The freehold of agricultural and grazing lands may be acquired by conditional purchase under the following tenures:—(i) Agricultural, grazing and selection purchase allotments; (ii) agricultural and grazing allotments by selection from grazing area or perpetual leases; (iii) Mallee selection purchase leases; (iv) Murray settlements leases; and (v) swamp or reclaimed lands purchase leases.

A description of the conditions under which land may be taken up under this form of tenure may be found in previous issues of the Year Book. (See No. 6, p. 278.)

With reference to Murray settlement leases, on the Merbein and Mildura Irrigation Settlements the development has been maintained and extended in a very satisfactory manner. These are proving the most successful irrigation settlements in the State. An area, 1,275 acres, adjoining Merbein and Mildura, has been subdivided and alloted to 83 soldiers. The Nyah Settlement also is making good progress.

The subjoined table gives particulars shewing the areas selected conditionally during the year 1901 and from 1915 to 1919. A large proportion of the areas shewn has reverted to the Crown in consequence of non-fulfilment of conditions.

VICTORIA.—AREAS PURCHASED CONDITIONALLY, 1901 AND 1915 TO 1919.

(EXCLUSIVE OF SELECTION IN THE MALLEE COUNTRY.)

Particulars.	1901.	1915.	1916.	1917.	1918.	1919.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
With residence	466,155	112,144	117,180	69,210	61,884	76,003
Without residence	50,257	15,645	22,485	19,462	12,093	6,635
Total	516,412	127,789	139,665	88,672	73,977	82,638
No. of selectors	2,979	883	902	646	526	698

Particulars as to total areas alienated and in process of alienation are given in a later part of this section. (See § 11.)

4. **Queensland.**—The several types of selection under which the freehold might, prior to 1917, have been acquired by conditional purchase are as follows:—(i) Agricultural farms; (ii) agricultural homesteads; (iii) prickly pear selections; and (iv) free homesteads.

In previous issues of this book may be found the conditions under which land might be selected under this form of tenure. (See No. 6, p. 280.)

Since the close of the year 1916, no selections can be acquired on a freeholding basis, but existing selections are not affected, though they may be converted to perpetual leases if the selectors so desire.

Number and Area of Conditional Purchases prior to 1917. The following table shews the number and area of conditional purchases for which applications were accepted in 1901 and from 1914 to 1916:—

QUEENSLAND.—CONDITIONAL PURCHASES (APPLICATIONS ACCEPTED), 1901 AND 1914 TO 1916.

Year.	Agricultural Farms.		Agricultural Homesteads.		Prickly Pear Selections.		Total.	
	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.
		Acres.		Acres.		Acres.		Acres.
1901 ..	661	160,804	669	155,512	19	48,450	1,349	364,766
1914 ..	1,554	538,844	25	5,927	636	683,000	2,215	1,227,771
1915 ..	978	300,302	12	1,913	451	481,258	1,441	783,473
1916 ..	399	120,207	5	1,337	203	180,921	607	302,465

During the years 1917 to 1919, no land was opened for selection, nor was any selected, under tenures involving freehold.

Particulars as to total areas alienated and in process of alienation may be found hereinafter. (See § 11.)

5. **South Australia.**—The types of conditional purchases under which land may be alienated in this State are as follows:—(i) Agreement to purchase, and (ii) Agreement under the Pinnaroo Railway Act 1903.

(i) *Agreement to Purchase.* Surveyed Crown lands are available for agreement to purchase, as well as for perpetual lease under the Crown Lands Acts of 1915, the purchase money being fixed by the Land Board, and payable in sixty half-yearly payments, including interest at not less than 2 per cent. per annum. The condition as to payment of instalments for land offered under the provisions of Act of 1915 in newly surveyed mallee lands is that no payment is made for the first four years, from the fifth to end of the tenth year interest only at the rate of 2 per cent. per annum on value of land is payable, the first instalment of purchase money, including interest at the rate of 4 per cent. per annum, being payable at the commencement of the eleventh year. All payments are made in advance, the term of agreement being thereby extended to forty years. If the conditions relating to fencing, vermin destruction, and, in some cases, to residence are fulfilled, the purchase may be completed after a term of six years from commencement of the agreement on payment of all principal and interest due. All minerals are reserved to the Crown, and the Crown may resume any part of the land for the purposes of roads, water conservation, mining, &c., compensation being payable to the purchaser for loss occasioned by resumption.

(ii) *Pinnaroo Railway Lands.* Under the Pinnaroo Railway Act 1903 provision was made for opening up about 1,500,000 acres of good agricultural country in the vicinity of a line from Pinnaroo, adjoining the Victorian border, to Tailem Bend, a distance of eighty-seven miles. These lands are now offered on agreement with covenant to purchase or on perpetual lease under the Crown Lands Act 1915. The railway has been paid for from the proceeds of the land already selected. The conditions of purchase are similar to those stated in par. (i) above.

The total area held on 30th June, 1920, was 1,100,240 acres; of this area purchase has been completed of 472,102 acres, and 16,179 acres are held on perpetual and right of purchase leases, allotted before the Pinnaroo Railway Act was passed.

(iii) *Particulars of Conditional Purchases.* The subjoined table gives particulars of the areas alienated by conditional purchase, on fulfilment of the conditions, at the end of 1901 and from 1915 to 1919 :—

SOUTH AUSTRALIA—AREAS ALIENATED UNDER AGREEMENTS TO PURCHASE, 1901 AND 1915 TO 1919.

Year	1901.	1915.	1916.	1917.	1918.	1919.
Area in acres	57,460	55,181	46,098	26,418	17,963	32,929

Particulars as to the total areas alienated and in process of alienation are given in a later part of this section. (See § 11.)

6. Western Australia.—The various types of selection under which the freehold can be alienated by conditional purchase in this State are as follows :—(i) Residential conditional purchase; (ii) non-residential conditional purchase, (iii) conditional purchase by direct payment; (iv) conditional purchase of blocks for vineyards, orchards, or gardens; (v) conditional purchase of grazing lands; (vi) free homestead farms; and (vii) town and suburban lots.

A full description of the various conditions under which land may be held under this form of tenure may be found in the previous issues of the Year Book. (See Year Book No. 5, pp. 283 and 284.) The following table shews the area of the selections for which grants were issued, the prescribed conditions having been fulfilled, during the year 1901 and from 1915 to 1920 :—

WESTERN AUSTRALIA—AREAS SELECTED CONDITIONALLY FOR WHICH CROWN GRANTS WERE ISSUED, 1901 AND 1915 TO 1920.

Particulars.	1901.	1915.(a)	1916.(a)	1917.(a)	1918.(a)	1919.(a)	1920.(a)
	Acres.	Acres	Acres.	Acres.	Acres.	Acres.	Acres.
Free homestead farms	147	62,520	61,395	69,816	45,770	42,888	113,630
Conditional purchases	5,234	144,684	50,845	80,096	126,642	100,237	129,207
Poison land leases..	..	4,001	5,034	..	3,977	..	..
Total ..	5,381	211,205	117,274	149,912	176,389	143,125	242,837
Number of holdings	48	859	724	897	946	872	1,418

(a) For financial year ended 30th June.

Particulars as to the total areas alienated absolutely, and in process of alienation, are given in a later part of this section. (See § 11.)

Area Conditionally Alienated. The following table shews the areas conditionally alienated under various methods of selection during the year 1901 and from 1915 to 1920 :—

WESTERN AUSTRALIA—AREAS CONDITIONALLY ALIENATED, 1901 AND 1915 TO 1920.

Particulars.	1901.	1915.(a)	1916 (a)	1917.(a)	1918.(a)	1919.(a)	1920.(a)
Conditional Purchase—	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Deferred payments (with residence)	161,302	164,461	85,957	47,659	124,881	496,69 (d)	1,143,240
" " (without residence)	46,498	43,203	31,187	20,426	43,951	49,[illegible]66	114,094
Direct payments (without residence)	1,909	685	208	1,[illegible]6	597	640	127
Free Homestead Farms	63,623	62,140	32,549	21,357	21,818	24,[illegible]59	53,550
Under the Agric. Lands Purchase Acts	4,295	4,122	1,026	96	2,812	38,890	57,035
Grazing Leases	64,83[illegible]	227,9[illegible]0	157,712	145,956	352,535	.. (d)	..
Poison Land Leases(b)	9,530	..	..	..	..	..	..
Workingmen's Blocks(c)	8	..	1	..	..	..	5
Total	351,999	502,553	308,590	235,6[illegible]0	546,575	610,249	1,368,051
Number of holdings	1,888	1,51[illegible]	86[illegible]	637	973	1,156	2,621

(a) For year ended 30th June. (b) Provisions repealed by Act of 1906. (c) Closer settlement. (See § 8, 7.) (d) Deferred payments (with residence) are now combined with grazing leases.

Particulars as to the total areas in process of alienation are given in a later part of this section. (See § 11.)

7. **Tasmania.**—The various types of conditional purchases in this State are as follows:—(i) Selection of rural land; (ii) homestead areas; (iii) selection in mining areas; and (iv) sales by auction on credit, either of town or rural lands. The conditions under which land may be selected under this form of tenure are given in previous issues of the Year Book. (See No. 6, p. 283.)

The following table shews the areas alienated absolutely under systems of conditional purchases and sales on credit, the conditions having been fulfilled, and also shews the areas sold conditionally and the applications for conditional purchases received and confirmed, during the year 1901 and from 1915 to 1919:—

TASMANIA.—CONDITIONAL PURCHASES, 1901 AND 1915 TO 1919.

Particulars.	1901.	1915.	1916.	1917.	1918.	1919.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Completion of Conditional Purchases(a) ..	23,781	30,329	54,668	35,646	52,764	60,134
Sold Conditionally—						
Free Selections	40,004	42,584	35,716	21,686	24,796	24,084
Homestead Areas	9,108	100	99	90	90	40
Auction Sales on Credit	12,961	3,202	2,235	2,782	859	769
Other Sales (Town Lands)	636	740	479	515	675	412
Total	62,709	46,626	38,529	25,073	26,420	25,305
Applications—						
Received	1,444	1,010	842	913	1,409	1,212
Confirmed	768	563	328	344	350	437

(a) Including selections and sales on credit.

Particulars of total areas alienated and in process of alienation are given hereinafter. (See § 11.)

§ 7. Leases and Licenses.

1. **Introduction.**—Leases and licenses are issued in all the States and in the Northern Territory for various terms and upon various conditions. In Victoria, Queensland, South Australia, and the Northern Territory perpetual leases are issued for an indefinitely long period upon payment of an annual rent, while in all the States leases or licenses of comparatively large areas may be obtained for pastoral purposes. Provision has also been made in all the States for convenient forms of leases and licenses for various special purposes, and also for special classes of lands. The leases and licenses dealt with below are exclusive of those issued under Closer Settlement and kindred Acts, and of those issued for mining and auxiliary purposes. (See §§ 8 and 9.)

2. **New South Wales.**—The following are the various types of leases and licenses issued in this State:—(i) Conditional leases; (ii) conditional purchase leases; (iii) settlement leases; (iv) improvement leases; (v) annual leases; (vi) residential leases; (vii) special leases; (viii) snow leases; (ix) pastoral leases; (x) scrub leases; (xi) inferior lands leases; (xii) occupation licenses; (xiii) Western lands leases; (xiv) homestead farm leases; (xv) suburban holdings leases; (xvi) Crown leases; (xvii) irrigation farm leases; (xviii) week-end leases; (xix) leases of town lands; (xx) returned soldiers' special holdings.

A description in detail of the conditions which govern the issue of these various leases and licenses may be found in previous editions of the Year Book. (See Year Book No. 6, p. 285.)

On the 30th June, 1920, there were 58,351 leases and licenses current under the Lands Department and the Western Land Board, comprising 115,631,338 acres of Crown lands. Of these leases 3,006, comprising 75,450,265 acres, are held under the Western Lands Acts.

The following table shews the areas held under various descriptions of leases and licenses at the end of the year 1901, and at the end of 1916-17 and following financial years, and also the area and rental of leases current on the 30th June, 1920:—

NEW SOUTH WALES.—AREAS OCCUPIED UNDER LEASES AND LICENSES, 1901 AND 1917 TO 1920.

Leases and Licenses.	1901.	1916-17.	1917-18.	1918-19.		1919-20.	
				Area.	Rent.	Area.	Rent.
	Acres.	Acres.	Acres.	Acres.	£	Acres.	£
Pastoral	44,805,221	1,136,475	1,136,475	..	..	..	..
Outgoing pastoral leases ..	..	802,941	725,312	677,221	6,007	627,833	5,504
Western land leases and licenses(a)	..	73,693,368	73,754,817	75,243,327	93,145	75,450,265	112,007
Occupation licenses (i) Ordinary	25,812,215	5,163,417	5,085,034	4,111,467	8,222	3,625,750	7,502
Occupation licenses (ii) Preferential	12,985,651	1,184,341	1,159,345	966,613	4,240	806,755	3,124
Homestead leases ..	10,053,388	351,374	153,275	51,074	64	35,687	55
Condit'l leases (i) Gazetted ..	13,014,055	15,226,444	14,831,535	14,468,840	190,214	14,340,048	191,352
Condit'l leases (ii) Not gazetted (under provisional rent)	966,887	43,068	39,523	81,735	681	157,248	1,310
Conditional purchase leases	..	457,173	433 228	408,768	13,559	384,868	13,600
Settlement leases ..	3,468,675	4,730,130	4,571,864	4,479,135	52,908	4,248,826	55,716
Improvement " ..	5,551,060	4,686,246	4,355,297	3,902,870	26,881	3,688,890	24,289
Annual " ..	6,755,942	2,649,284	2,510,954	2,552,665	21,517	2,953,298	28,074
Scrub " ..	1,535,415	1,812,694	1,689,056	1,658,675	6,496	1,537,704	6,138
Snow land " ..	79,582	10,909	131,420	134,420	1,272	134 424	1,272
Special " ..	124,877	650,384	664,935	663,919	37,016	703,678	37,929
Inferior land " ..	288,530	75,451	73,711	71,710	271	69,710	254
Artesian well " ..	358,071	61,440	51,200	..	..	..	..
Blockholders' " ..	..	1	1	1	6	1	6
Residential leases (on gold and mineral fields) ..	5,751	13,365	13,675	13,511	1,603	13,327	1,695
Church and school lands ..	97,207	3,850	11	11	330	11	330
Permissive occupancies(b)	118,634	1,009,090	1,156,416	1,365,570	10,873	1,774,985	13,550
Prickly pear leases ..	..	45,433	42,558	41,148	495	37,692	431
Crown leases	..	2,134,446	2,449,587	2,694,879	31,303	3,092,904	34,521
Homestead farms ..	..	1,036,685	1,081,622	1,410,612	4,303	1,889,100	71,020
Suburban holdings ..	..	36,631	38,643	41,227	4,670	40,198	4,401
Week-end leases ..	..	55	87	240	66	281	66
Leases of town lands ..	..	16	17	17	62	19	47
Returned soldiers' special holdings	..	639	2,575	10,952	1,437	17,888	2,045
Total under Lan s Dept. & Western Land Board	126,921,16	117,015,359	116,150,073	115,110,607	517,701	115,631,339	611,247

(a) Includes permissive occupancy.
(b) Permissive occupancies in the Western Division not included.

The total annual rent derived from the leases and licenses issued by the Lands Department and the Western Lands Board amounted to £611,247, or an average of 1.27 pence per acre. Particulars regarding leases and licenses issued by the Mines Department are given in a later part of this section. (See § 9, *Occupation of Crown Lands for Mining Purposes.*)

3. Victoria.—The various types of leases and licenses (exclusive of Closer Settlement and Mines Department leases and licenses) which may be issued in this State are as follows:—(i) Grazing area leases; (ii) selection purchase leases; (iii) perpetual leases; (iv) Mallee perpetual leases; (v) licenses of auriferous lands; (vi) swamp or reclaimed lands leases; (vii) grazing licenses; (viii) leases and licenses for other than pastoral purposes; and (ix) State forests and timber reserves licenses.

A description in detail of the conditions which govern the issue of these various leases and licenses may be found in the previous issues of the Year Book. (See Year Book No. 5, pp. 291-2.)

Areas held under Leases and Licenses. The following statement shews the areas of Crown lands occupied under leases and licenses at the end of the year 1901 and from 1915 to 1919:—

VICTORIA.—OCCUPATION OF CROWN LANDS UNDER LEASE OR LICENSE, 1901 AND 1915 TO 1919.

Tenure.	Area in Acres.					
	1901.	1915.	1916.	1917.	1918.	1919.
Pastoral Leases	39,450	..	..	..	..	..
Grazing Area Leases	2,338,649	2,575,480	2,502,556	2,573,143	2,503,197	2,408,481
Grazing Licenses—						
Land Acts 1890-91	5,908,985	..	..	..	..	..
Land Acts 1901 (excl. of Mallee)	..	5,254,907	4,647,510	4,493,453	5,060,740	5,974,069
Mallee Lands	..	4,868,746	4,974,132	5,028,808	2,796,686	4,931,503
Auriferous Lands (Licenses) ..	377,427	79,618	77,393	74,032	71,400	68,452
Swamp Lands (Leases) ..	4,200	3,824	3,825	3,670	3,412	1,759
Perpetual Leases	8,137	8,182	7,629	7,761	7,559	7,569
Mallee Pastoral Leases ..	7,980,592	..	..	..	..	..
Mallee Allotment Leases ..		..	..	..	..	..
Perpetual Leases under Mallee Lands Acts 1896-1901 ..	448,812	244,765	220,914	202,943	197,253	189,653
Wattles Act 1890	4,427	..	..	..	..	..
Total	17,110,709	13,035,612	12,433,959	12,383,810	10,649,247	13,531,476

4. **Queensland.**—In this State Crown lands may be occupied under the following types of leases and licenses :—(i) Grazing homesteads ; (ii) grazing farms ; (iii) occupation licenses ; (iv) special leases ; (v) perpetual lease selections ; (vi) perpetual lease prickly-pear selections ; (vii) pastoral leases ; (viii) preferential pastoral leases ; (ix) auction perpetual leases (town, suburban, and country) ; (x) non-competitive leases. An applicant for a grazing homestead or grazing farm may not hold more than 60,000 acres, and the term of the lease may not exceed 28 years. The rents of grazing selections are redetermined by the Land Court for each period of seven years, and those of pastoral holdings for each period of ten years.

(i) *Grazing Homesteads.* Lands opened for grazing selections are available for fifty-six days as grazing homesteads only. In the case of land selected up to 31st December, 1916, personal residence was necessary for the first five years, and prior to the expiration of such period or the earlier death of the lessee, a grazing homestead could not be assigned or transferred. Without the special permission of the Minister it could not be mortgaged during the five years except to the Agricultural Bank ; thereafter the lease was subject to the condition of occupation. Since 1st January, 1917, grazing homesteads are subject to personal residence by the selector during the whole term of the lease, but the restrictions on assignment or transfer still operate only during the first five years.

(ii) *Grazing Farms.* In order to obtain priority of claim the applicant may tender an annual rent higher than the notified one, for the first seven years. As soon as the land is fenced the selector becomes entitled to a lease, and may thereafter transfer or mortgage the same. The lease is subject to the condition of occupation during the whole term. The Crown may resume the whole or part of the lease.

Particulars of the selection of grazing farms and grazing homesteads are given in the following paragraph.

(iii) *Grazing Farms, Homesteads, and Scrub Selections.* The following table shews the number of grazing farms, grazing homesteads, and scrub selections, for which applications were accepted in 1901 and from 1915 to 1919 :—

QUEENSLAND.—GRAZING FARMS, HOMESTEAD, AND SCRUB SELECTIONS, 1901 AND 1915 TO 1919.

Year.	Grazing Farms.		Grazing Homesteads.		Scrub Selections.		Total.	
	No.	Area.	No.	Area.	No.	Area.	No.	Area.
		Acres.		Acres.		Acres.		Acres.
1901 ..	247	1,371,283	47	290,765	19	48,460	313	1,710,518
1915 ..	222	2,461,836	275	3,984,517	..	..	497	6,446,353
1916 ..	112	1,412,652	247	3,065,096	..	..	359	4,477,748
1917 ..	129	1,925,059	197	2,243,218	..	..	326	4,168,277
1918 ..	175	3,111,716	210	2,597,571	..	..	385	5,709,287
1919 ..	292	4,437,564	196	2,094,413	..	..	488	6,531,977

The average rent in 1919 was .71d. per acre for grazing farms and 1.21d. per acre for grazing homesteads.

Particulars of total areas held under leases and licenses are given in a later part of this section. (See § 11.)

(iv) *Occupation Licenses.* Annual licenses are granted to occupy Crown lands which have been declared open for such occupation by notification in the *Gazette.* The rent is as specified by the notification or as bid by the licensee, but the Minister may by notice before the 1st September in any year increase the rent. The total number of licenses in force at the end of the year 1919 was 2,780, comprising an area of 57,173 square miles, the total rent being £52,863. Particulars of the area held under license for previous years are given in a later part of this section. (See § 11.)

(v) *Special Leases.* Leases of any portion of Crown land may be issued for a term not exceeding thirty years to any person for any manufacturing, industrial, business or recreation purposes. Leases for a similar term may be issued for any country lands reserved for public purposes and which are infested with noxious weeds.

During the year 1919 there were 135 leases for special purposes granted, comprising an area of 7,478 acres, the total annual rent being £919, and there were extant at the end of the year 847 such leases, comprising an area of 61,400 acres and reserving rents amounting to £4,556 per annum. In addition, 63 leases of reserves, aggregating 15,249 acres, were granted at rentals amounting to £372 per annum, the total number of these leases of reserves in force at the end of the year being 415, comprising an area of 148,801 acres and reserving rents amounting to £1,869. Particulars of special leases for previous years are given in a later part of this section. (See § 11.)

(vi) *Perpetual Lease Selections.* Up to 31st December, 1916, land proclaimed to be open for agricultural farm selection (see § 6, 4) might also be opened for perpetual lease selection, and the latter mode might be conceded priority of application over the former. The rent for the first period of ten years of the lease was 1½ per cent. on the proclaimed purchase price of the land for agricultural farm selection. The rent for each succeeding period of ten years was determined by the Land Court. Similar conditions of occupation and improvement as were prescribed for agricultural farms were attached to perpetual lease selections. From 1st January, 1917, land opened for agricultural selection may be opened only for perpetual lease selection, and land opened for prickly-pear selection may be opened only for perpetual lease prickly-pear selection. In the case of perpetual lease selections, the rent for the first period of 15 years is 1½ per cent. of the notified capital value of the land, and for each succeeding period of 15 years may be determined by the Land Court. In the case of perpetual lease prickly-pear selections, no rent is payable during the pear-clearing period, but thereafter rents are paid in the same manner as for perpetual lease selections. The conditions of selection are similar to those for the previous tenures of agricultural farms and prickly-pear selections.

QUEENSLAND.—PERPETUAL LEASE SELECTIONS, 1915 TO 1919.

Particulars.		1915.	1916.	1917.	1918.	1919.
Number ..	..	175	294	605	898	1,285
Area ..	acres	59,760	114,011	207,581	305,873	609,483
Rent ..	£	973	1,806	3,141	4,596	8,055

Particulars of perpetual lease prickly-pear selections taken up, 1917 to 1919, were as follows :—

QUEENSLAND.—PERPETUAL LEASE PRICKLY-PEAR SELECTIONS, 1917 TO 1919.

Particulars.		1917.	1918.	1919.
Number ..	..	180	178	460
Area ..	acres	141,336	153,151	514,064

(vii) *Special Licenses.* Licenses to cut timber or to dig for any stone, gravel, earth, shells, or guano, may be issued.

(viii) *Pastoral Leases.* Up to 31st December, 1916, existing pastoral leases were deemed to be held under the Land Act 1910. Lands open for pastoral lease might be leased for a period not exceeding thirty years. The annual rent, per square mile, for the first ten years must be as notified in the *Gazette*, or in case of competition, bid at auction. If the value of the holding became enhanced by the development of public works in the neighbourhood, or by the occurrence of minerals on or near the holding, the rent might be redetermined. A new pastoral tenure, as from 1st January, 1917, was introduced by the amending Act of 1916, viz., preferential pastoral lease. Holdings under this tenure are confined to persons with no interests or limited interests in pastoral leases, and priority of application may be obtained by an applicant undertaking to reside on the holding personally during the first seven years.

The following table shows the total areas of pastoral leases occupied under the various Acts at the end of the year 1901 and from 1915 to 1919 inclusive :—

QUEENSLAND (a).—PASTORAL LEASES OCCUPIED UNDER VARIOUS ACTS, 1901 AND 1915 TO 1919.

Particulars.	Area in Square Miles.					
	1901.	1915.	1916.	1917.	1918.	1919.
Pastoral Leases Act 1869	39,307	..	..	..	..	..
Crown Lands Act 1884	243,586	..	..	..	..	..
Land Act 1897	15,046	..	..	..	..	..
Pastoral Leases Act 1900	50,076	..	..	..	..	..
Pastoral Holdings New Leases Act 1901	..	..	..	..	..	..
Land Act 1902	..	..	..	..	..	..
Land Act 1910	..	349,838	337,423	330,596	331,937	325,709
Land Act Amendment Act 1916 (preferential)	..	..	..	636	1,935	4,026
Total	348,015	349,838	337,423	331,232	333,872	329,735

(a) Up to the year 1910, resumed parts of pastoral holdings were included in these figures, but since that year they are held under occupation license, and are included in the figures under that head.

The gross area held at the end of the year 1919 for purely pastoral purposes (under *Occupation Licenses and Pastoral Leases*) was 386,908 square miles, at rentals aggregating £375,807 per annum. The area was 10,549 square miles less than that for the previous year, and the rental was £9,204 more. The average rent was 19s. 5½d. per square mile, as against 18s. 5½d. for the previous year.

Eight non-competitive perpetual leases were issued during 1919, the total area being 224 acres, and the annual rent £14.

5. **South Australia.**—The following are the various types of leases and licenses which are issued in this State :—(i) Perpetual leases; (ii) miscellaneous leases; (iii) miscellaneous grazing and cultivation leases; (iv) irrigation and reclaimed swamp leases; (v) licenses for special purposes; (vi) leases under the Pastoral Act 1904; and (vii) leases with right of purchase.

(i) *Perpetual Leases.* Surveyed Crown lands are available for perpetual leases as well as for agreements to purchase under the Crown Lands Act of 1915. Under the Crown Lands Act of 1888 perpetual leases were granted in perpetuity, and the rent determined for each period of fourteen years, at least twelve months before the expiration of each such period. Under the Crown Lands Act of 1893 the revaluation section was repealed and the rent was fixed in perpetuity, generally at rates varying from 2 per cent. to 4 per cent. per annum on the value of the land as fixed by the Land Board. The condition as to payment of rent of land offered under provisions of the Act of 1915 in newly surveyed mallee lands is that no rent is charged for the first four years, and from the fifth to the end of the tenth year payment is made at the rate of 2 per cent. per annum, the full rate at 4 per cent. becoming due at the commencement of the eleventh year. All minerals are reserved to the Crown, and the Crown may reserve any part of the land for the purposes of roads, water conservation, mining, &c., compensation being payable to the lessee for loss occasioned by resumption.

The conditions under which the other leases and licenses are issued will be found in detail in previous issues of the Year Book. (See Year Book No. 5, pp. 294 and 295).

(ii) *Areas held under Lease.* The following table shews the areas held under leases and licenses at the end of the year 1901 and from 1915 to 1919 :—

SOUTH AUSTRALIA.—AREAS UNDER LEASES AND LICENSES, 1901 AND 1915 TO 1919.

Particulars.	1901.	1915.	1916.	1917.	1918.	1919.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Right of Purchase Leases	5,639,519	2,574,640	2,504,143	2,440,731	2,402,355	2,329,100
Perpetual Leases ..	7,115,782	14,943,771	14,851,173	14,810,026	14,625,830	14,650,223
Pastoral Leases ..	68,016,125	95,756,850	95,016,370	100,889,010	95,264,050	96,358,450
Other Leases	3,905,720	1,144,683	1,128,630	1,049,522	617,654	806,029
Total held under Lease	85,577,155	114,419,944	113,500,316	119,189,289	112,909,898	114,143,802

6. **Western Australia.**—The following are the various types of leases and licenses issued in this State :—(i) Pastoral leases ; (ii) permits and licenses to cut timber ; (iii) special leases ; and (iv) licenses for quarrying.

The conditions of tenure with respect to these leases and licenses may be found in previous issues of the Year Book. (See Year Book No. 5, pp. 296–7.)

Areas held under Leases and Licenses. The following table shews the number and areas of leases and licenses issued during the year 1901 and from 1915 to 1920 :—

WESTERN AUSTRALIA.—LEASES AND LICENSES ISSUED, 1901 AND 1915 TO 1920.

Particulars.	1901.	1915.(a)	1916.(a)	1917.(a)	1918.(a)	1919.(a)	1920.(a)
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Pastoral Leases ..	19,909,251	7,630,023	7,489,083	9,436,159	20,287,672	39,016,706	18,961,478
Special Leases	149	5,571	1,707	626	8,097	16,845	1,509
Leases in Reserves ..	324	196,340	434,455	128,402	87,712	539,041	215,134
Timber Leases and Permits(b)	109,630	38,000	219,088	329,370	84,770	93,171	..
Residential Lots ..	221	..	..	..	..	..	..
Total ..	20,019,575	7,869,934	8,144,033	9,894,557	20,468,251	39,665,763	19,178,121
Number issued	1,466	1,410	1,105	510	508	1,014	545

(a) For financial year ended the 30th June. (b) No timber leases granted since 1903. Timber leases and permits are now under the control of the Forests Department.

Particulars as to the total area occupied under leases and licenses are given in a later part of this section. (See § 11.)

7. **Tasmania.**—The several forms of leases and licenses in this State are as follows :—(i) Grazing leases; (ii) miscellaneous leases; (iii) timber licenses; (iv) occupation licenses; (v) temporary licenses; and (vi) timber leases.

The conditions which govern the issue of these leases and licenses are more fully dealt with in previous issues of the Year Book. (See Year Book No. 5, p. 297.)

Areas held under Leases and Licenses. The following table shews the areas of Crown lands occupied under leases and licenses at the end of the year 1901 and from 1915 to 1919 :—

TASMANIA.—LEASES AND LICENSES ISSUED, 1901 AND 1915 TO 1919.

Particulars.	1901.	1915.	1916.	1917.	1918.	1919.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Ordinary Leased Land ..	1,280,688	1,452,068	1,434,113	1,193,169	1,201,169	1,341,000
Islands	149,165	204,630	207,630	197,406	197,918	151,000
Land Leased for Timber ..	40,768	120,832	146,881	155,889	183,804	218,784
Total	1,470,621	1,777,530	1,788,624	1,546,464	1,582,891	1,710,784

8. **Northern Territory.**—The system of land settlement in the Northern Territory has been reorganised by the Commonwealth Government. A New Lands Ordinance was passed in December, 1912, known as the Crown Lands Ordinance 1912, and future disposal of land in the Territory will be made in accordance with this Ordinance, which provides for a leasehold system only, and no further alienation of Crown lands will be permitted, unless such alienation is in pursuance of existing agreements. Under this

Ordinance, the classification and control of Crown lands is in the hands of a Board, consisting of the Director of Lands and two other officers appointed by the Administrator. The classified land is leased in blocks, the maximum areas for agricultural lands being 1,280 acres in class 1, and 2,560 acres in class 2; for mixed farming and grazing, 12,800 acres in class 1, and 38,400 acres in class 2; for pastoral purposes, 300 square miles in class 1, 600 square miles in class 2, and 1,500 square miles in class 3. Before offering any land for leasing, the Board fixes the annual rental, but every lease is subject to reappraisement of rent at specified periods, viz., every fourteen years in the case of town lands, and every 21 years in the case of agricultural and pastoral lands.

Leases under this Ordinance are in perpetuity except as regards pastoral and miscellaneous leases, the maximum term of which is fixed by the Classification Board when advertising lands for lease, but does not exceed 21 years for miscellaneous lease and first class pastoral lands, or 42 years for second and third class pastoral land.

In order to promote settlement in the Territory, the first 5,000 blocks of agricultural land taken up on perpetual lease under this Ordinance will be rent free during the life of the applicant, or for 21 years from the commencement of the lease, whichever period is longer.

The lessee must make a home on the land within two years after the date of the lease and thereafter reside on the land for a period of six months in each year in the case of land for cultivation, and four months in the year in the case of mixed farming and grazing; he must also fence, improve, and stock his land in accordance with the terms of the lease.

Amending Ordinances have been passed from time to time, and regulations have been made modifying improvement conditions on leases, also allowing for the issue of licenses to graze stock on Crown lands. In November, 1918, an important amendment to the principal Ordinance was passed, amending Section 48, by providing that no resumptions should be made from pastoral leases held under that Ordinance, in class 1 during the first ten years of the lease, and in classes 2 and 3 during the first fourteen years of the lease, and at no time within 5 miles of the Head Station during the whole term of the lease, except for public purposes such as railways, tramways, &c., as specified in sub-section 2 of that section.

The various types of leases, licenses, and permits current are as follows:—(i) Agricultural leases; (ii) pastoral leases; (iii) special leases; (iv) town leases; (v) miscellaneous leases; (vi) leases with right of purchase; (vii) tropical products leases; (viii) leases for horsebreeding stations; (ix) licenses (grazing, occupation, &c.); and (x) pastoral and other permits. (See § 2, 7.) The permit system, and the granting of leases with right of purchase, tropical provident leases, and leases for horsebreeding purposes, were discontinued in 1911. Those issued before that year have, to a great extent, expired and been cancelled, and the land otherwise brought under the Ordinance.

Areas held under Lease, License, and Permit. The following table shews the total areas held under lease, license, and permit at the end of the years 1901 and 1915 to 1920:—

NORTHERN TERRITORY.—AREA HELD UNDER LEASE, LICENSE, OR PERMIT, 1901 AND 1915 TO 1920.

Particulars.	1901.	1915.	1916.	1917.	1918.	1919.	1920.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Right of Purchase Leases	1,067	436	436	436	436	436	356
Pastoral Leases and Grazing Licenses ..	111,476,240	113,813,329	110,560,129	103,993,600	114,264,320	117,420,160	133,444,160
Other Leases and Licenses	1,176,981	112,862	109,353	108,387	199,362	5,297,610	9,829,555
Total ..	112,654,288	113,926,627	110,669,918	104,102,423	114,464,118	122,718,206	143,274,071

On 31st December, 1920, the areas held under other leases and licenses were:—Pastoral permits, 4,471,040 acres; annual pastoral leases, 63,360 acres; gold mining leases, 994 acres; mineral leases, 2,299 acres; perpetual leases, 233 acres; agricultural leases, 24,095 acres; miscellaneous leases (including water leases), 1,380,426 acres; coal permits, 3,886,720 acres; tin-dredging leases, 200 acres; and special (garden, occupation, &c.) leases, 188 acres.

§ 8. Closer Settlement and Soldier Settlement.

1. **Introduction.**—In all the States, Acts have been passed authorising the Governments to repurchase alienated lands for the purpose of cutting them up into blocks of suitable size and throwing them open to settlement on easy terms and conditions. Special Acts have also been passed in several of the States authorising the establishment on particular lines of co-operative communities, village settlements, and labour colonies. Lands may be acquired either compulsorily or voluntarily in New South Wales, Victoria, Queensland, and Tasmania, but only voluntarily in South Australia and Western Australia. A scheme of soldier settlement, for those who took part in the European war of 1914–1918, was inaugurated in connexion with repatriation activities, and has been very largely availed of. Particulars of the operation of the scheme will be found in Section XXVIII, § 9 *infra*. In some cases, areas acquired for Closer and Soldier Settlement have been transferred to other uses. The bulk of the land set apart under these projects has been specially acquired from private owners.

The following table gives particulars up to the latest available date of operations under the Closer Settlement Acts for each State and the whole Commonwealth :—

CLOSER SETTLEMENT.—TOTAL AREAS ACQUIRED AND ALLOTTED AT 30th JUNE, 1920.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Area acquired .. acres	1,215,187	573,730	785,311	768,138	446,804	77,084	3,866,254
Purchasing price £	5,146,010	4,269,050	1,955,060	2,569,350	421,373	296,897	14,657,740
Farms, &c., allotted — No.	2,801	3,060	2,870	2,774	79(*a*)	300	11,884(*a*)
Farms, &c., allotted — acres	1,196,392	471,239	730,070	666,830	40,653(*a*)	72,049	3,177,233(*a*)

(*a*) Complete figures for Western Australia not available.

The following table shows the areas of private lands acquired in each State in the financial year 1900–01, and at the end of each year from 1915 to 1920 :—

CLOSER SETTLEMENT.—AREAS OF PRIVATE LANDS ACQUIRED, 1901 AND 1915 TO 1920.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901	..	28,553	132,760	..	46,624	..	207,937
1915	685,156	564,520	664,363	611,402	446,804	73,162 (*a*)	3,045,407
1916	745,883	564,600	785,311	681,117	446,804	73,320 (*a*)	3,277,035
1917	747,204	567,943	785,311	685,217	446,804	75,259 (*a*)	3,307,738
1918	759,526	565,442	785,311	685,611	446,804	75,259 (*a*)	3,317,953
1919	823,899	566,725	785,311	691,109	446,804	75,259 (*a*)	3,389,107
1920	1,215,187	569,808	785,311	710,559	446,804	76,073 (*a*)	3,803,742

(*a*) Including 10,382 acres of Crown lands.

SOLDIER SETTLEMENT.—AREAS ACQUIRED AND ALLOTTED AT 30th JUNE, 1920.

——	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Area acquired or set apart .. .. acres	569,803	1,168,779	568,907 (*c*)	619,087	220,036	217,084	3,363,696 *c*
Purchase price .. £	2,865,458	7,641,526	192,192(*a*)	2,013,620	424,351	1,638,910	(*b*)
Farms, &c., allotted — No.	1,337	3,825	2,052	769	273	1,422	9,678
Farms, &c., allotted — acres	569,803	937,350	571,722	436,750	118,280	217,084	2,852,989
Area of private land acquired to date acres	569,803	965,293	30,339	(*b*)	220,036	217,084	(*b*)

(*a*) The price of a considerable area resumed has not yet been determined.
(*b*) Not available.

2. Government Loans to Settlers.—*For the purpose of promoting pastoral, agricultural, and similar pursuits, and with the object of assisting settlers in erecting buildings and carrying out improvements on their holdings, general systems have been established in all the States and in the Northern Territory under which financial aid is rendered to settlers by the State Governments. These general systems are more particularly referred to in the section in this book dealing with "Agriculture." In many of the Closer Settlement and similar Acts, however, special provisions have been inserted with the object of lending money to settlers taking up land under these Acts, with which to build homes or effect improvements. The principal features of these provisions are referred to below.*

3. New South Wales.—Under the Closer Settlement Act of 1901 provision was made for the acquisition of private lands or of Crown lands held under lease, for the purpose of closer settlement. No power of compulsory resumption was conferred by the Act, which was in consequence practically inoperative. Under the Closer Settlement Act of 1904 and subsequent amendments, and the Promotion Section of the Closer Settlement Acts, the Government is empowered to resume private lands, either by agreement or by compulsory purchase, and to alienate them on favourable terms to persons who desire to settle and make homes for themselves and their families on the soil. Land acquired under the Closer Settlement Acts is subdivided into blocks or farms, and by notification in the *Government Gazette* is declared to be a settlement purchase area available for application. The *Gazette* notice also gives all necessary information as to the class and character of the land, and the capital value, area, &c., of each block or farm.

(i) *Closer Settlement Purchase.* Under this tenure a settler may acquire the freehold of the land under a system of deferred payments. A deposit of 6½ per cent. of the notified value of the settlement purchase must be lodged with the application, except in the case of discharged soldiers or sailors, who are not required to pay any deposit, and a similar amount by way of instalment, paid annually until the purchase-money, together with interest at the rate of 5½ per cent., is paid off. Prior to 1st September, 1917, the deposit and annual instalments ranged from 5 per cent. to 6 per cent., and the interest from 4 per cent. to 5 per cent. Under this system the balance due to the Crown will be paid off in thirty-one years, the holding then becoming a freehold. A condition of residence for five years attaches to every settlement purchase. Under the amending Act of 1918, interest only may be paid in lieu of such instalments for such periods, and subject to such conditions as the Minister may determine. The Minister may also postpone payment conditionally or unconditionally of such interest, or one or more instalments of purchase money, if satisfied of the inability of the holder to pay, provided that the amount owing to the Crown does not exceed the original capital value plus 80 per cent. of the value of improvements effected on the settlement purchase since commencement of title.

(ii) *Closer Settlement Permissive Occupancies.* The Minister may grant permits to occupy any lands within a settlement purchase area which remain undisposed of, subject to certain terms and conditions.

(iii) *Sales by Auction.* Areas within closer settlement districts necessary for township settlement may be set apart by notification in the *Gazette.* Allotments, each of which may not exceed half an acre in extent, within such areas may be sold by auction.

(iv) *The Promotion Section of the Closer Settlement Acts.* Under this Section any three or more persons or any one or more discharged soldiers within the meaning of the Returned Soldiers' (Amendment) Act 1917, each of whom is qualified to hold settlement purchases and who desire to purchase from the same owner any private lands may, upon entering into an agreement with the owner and subject to valuation by the Advisory Board and the Savings Bank Commissioners, acquire such lands through the Minister on closer settlement conditions.

The number of farms allotted since the passing of the Act to date (1910–11 to 1918–19) was 1,149, the area 471,104 acres, and the amount advanced £2,439,229.

(v) *Areas Acquired and Disposed of.*—Up to the 30th June, 1920, 753 estates had been opened for settlement under the Closer Settlement Acts.

The following statement gives particulars of the aggregate areas opened up to the 30th June in each year from 1915 to 1920:—

NEW SOUTH WALES—CLOSER SETTLEMENT AREAS, 1915 TO 1920.

Year ended 30th June.	Areas.			Capital Values.		
	Acquired Lands.	Adjoining Crown Lands.	Total.	Acquired Lands.	Adjoining Crown Lands.	Total.
	Acres.	Acres.	Acres.	£	£	£
1915	685,156	89,540	774,696	2,685,660	163,254	2,848,914
1916	745,883	91,987	837,870	2,870,116	167,962	3,038,078
1917	747,204	91,996	839,200	2,895,638	168,175	3,063,813
1918	759,526	91,996	851,522	2,947,221	170,259	3,117,480
1919	801,366	94,254	895,620	3,173,885	175,331	3,349,216
1920	993,318	94,254	1,087,572	4,218,713	175,331	4,394,044

The total area thus set apart has been divided into 2,405 farms, comprising 1,011,224 acres, the remaining area being reserved for recreation areas, roads, stock routes, schools, &c.

The following table gives particulars as to the disposal of the farms by closer settlement purchase for the years ended the 30th June, 1915 to 1920:—

NEW SOUTH WALES.—CLOSER SETTLEMENT ALLOTMENTS, 1915 TO 1920.

Year.	Farms Allotted by Board to Date.			Total Amount received in respect of Settlement Purchases.	Total Number of Applications received.
	Number.	Area.	Value.		
		Acres.	£	£	
1914–15 ..	1,588	742,610	2,834,792	506,073	1,591
1915–16 ..	1,609(a)	748,573(a)	2,860,636(a)	718,660	1,612
1916–17 ..	1,622	759,753	2,905,550	834,485	1,625
1917–18 ..	1,624	760,083	2,907,055	985,863	1,625
1918–19 ..	1,736	786,942	3,105,214	1,139,178	1,740
1919–20 ..	2,326	1,007,000	4,263,001	1,349,393	2,330

(a) Including 45 Settlement Purchase Farms of 24,714 acres, with a capital value of £107,716, since converted into Homestead Farms.

(vi) *Labour Settlements.* These settlements were founded by the Labour Settlements Acts 1893 and 1894, which were amended and repealed by the Labour Settlements Act 1902. Land might be set apart for lease for a period of 28 years as a labour settlement under the superintendence of a Board of Control. The functions of the Board of Control were to enrol members of the settlement; to make regulations concerning the work to be done; to apportion the work among the members; and to distribute the wages and profits. The Minister was empowered to grant financial assistance to the Board of Control. Only two settlements, those at Bega and Wilberforce, were established under the Act. The Labour Settlements Act 1902 was repealed by the Bega and Wilberforce Labour Settlements Act 1917, which dissolves the Boards of Control, and provides for the settlers applying for the blocks they occupy as Homestead Farms under the Crown Lands Consolidation Act 1913.

The Murrumbidgee Irrigation Act 1910 provides for the acquisition of 1,668,000 acres near Narrandera, in Riverina, for irrigation and other purposes in connexion with the Burrinjuck Irrigation Scheme. Part of this area has since been made available.

4. Victoria.—(i) *Closer Settlement Act 1915.* The Closer Settlement Act in Victoria is administered by a Board consisting of three persons appointed by the Governor in Council, and entrusted with power to acquire, either compulsorily or by agreement, private lands in any part of the State for the purpose of Closer Settlement. The Board may dispose of all lands acquired, either Crown lands or repurchased lands, on conditional purchase leases either as (a) farm allotments not exceeding £2,500 in value, (b) workmen's homes allotments not exceeding £250 in value, and (c) agricultural

labourers' allotments not exceeding £350 in value. The price of the land must cover the cost of the original purchase and the cost of all improvements. Land acquired by the Board may also be sold in small areas in fee simple as sites for churches, public halls, butter factories, creameries, recreation reserves, or other public purposes.

The Board may approve of an agreement between an owner and one or more persons to purchase a farm or farms, not exceeding £2,500 in value. On the property being acquired by the Board, the applicant obtains a lease under Closer Settlement conditions.

(a) *Closer Settlement Leases.* Every conditional purchase lease is for such a term of years as may be agreed upon by the lessee and the Board, and payment must be made with interest at 4½ per cent. per annum by sixty-three half-yearly instalments, or such lesser number as may be agreed upon. Under the Act, postponement of payment of instalments may be granted by the Board up to 60 per cent. of the value of improvements. The lessee must personally reside during eight months in each year on his allotment, and for six years he must carry out prescribed improvements. Thereafter he may, with permission, transfer, assign, mortgage or sublet his allotment. After twelve years, if all conditions have been fulfilled, a Crown grant, with the same residence condition as that contained in the lease, will be issued. In the case of workmen's homes allotments the land must be fenced within one year, and a dwelling-house to the value of at least £50 must be erected within the same time; within two years further improvements must be made to the value of at least £25. As regards agricultural labourers' allotments, a dwelling-house to the value of at least £30 must be erected within one year, and within two years the allotment must be fenced. In the case of workmen's homes and agricultural labourers' allotments, the lessee may at any time transfer, assign or sublet with the consent of the Board.

(b) *Advances to Settlers.* The Board may make advances for the purpose of fencing and building dwelling-houses, and is empowered to erect dwelling-houses, outbuildings, or improvements on any allotment at a cost not exceeding £500 for any one allotment. Any sum so expended is repayable, with interest added, by instalments extending over a prescribed period, not greater than twenty years. Provision has also been made for deferring payments in case of hardship, as well as for advances (to the extent of 60 per cent. of the value of the improvements) to enable work to be carried on. Special advances may also be granted to purchase wire netting in rabbit-infested districts.

(c) *Loans to Municipalities.* Loans may be made out of the Closer Settlements Fund for the purpose of carrying out any road-making or other public works within the boundaries of an estate.

(d) *Areas acquired and made available for Closer Settlement.* The following statement shews the operations which have taken place in Victoria under the provisions of the Closer Settlement Acts 1898 to 1915, up to the 30th June, 1901 and 1915 to 1920:—

VICTORIA.—CLOSER SETTLEMENT, 1901 AND 1915 TO 1920.

(INCLUDING IRRIGATED AREAS.)

Year ended 30th June.	Total Area Acquired by Government to Date.	Total Cost to Date.	How Made Available for Settlement. Farm Allotments.*	Workmen's Homes Allotments.	Agricultural Labourers' Allotments.	Town Allotments.	Roads and Reserves.	Number of Applications Granted to Date.	Total Receipts to Date.	Repayments of Principal to Date.	Area Available for Settlement.
	Acres.	£	Acres.	Acres.	Acres.	Acres.	Acres.	No.	£	£	Acres.
1901	28,553	151,566	28,461	69	..	44	240	193	7,529	..	..
1915a	567,993	4,230,055	509,454	782	5,111	26,163	..	4,227	1,452,187	523,960	56,525
1916	568,073	4,230,779	513,881	778	5,547	27,193	..	4,321	1,661,427	569,445	61,678
1917	571,953	4,277,356	517,467	781	4,720	27,546	4,201	4,509	1,670,959	608,728	43,017
1918	569,334	4,239,956	502,475	783	4,832	29,577	4,210	4,594	1,974,744	655,380	30,819
1919	570,617	4,252,543	501,537	785	4,584	30,244	5,037	4,476	2,300,705	729,493	28,489
1920	573,730	4,269,050	528,502	784	4,470	34,400	4,499	4,469	2,690,934	851,888	21,069

(a) During 1915, areas previously classed as Workmen's Homes and Agricultural Allotments were transferred to Farm Allotments.

Up to 30th June, 1920, there were also acquired under the Discharged Soldiers' Settlement Act 1917 (including Crown Lands and Closer Settlement Areas taken over), 1,168,779 acres, at a cost of £7,641,526. Applications granted numbered 3,825; and 972,990 acres were made available for farm allotments.

(ii) *The Small Improved Holdings Act 1906.* Under this Act, which has been repealed, 2,822 acres at a cost of £53,568 allotted to 260 settlers were purchased close to towns where industrial employment could be obtained by the settlers.

These settlements are now under the control of the Closer Settlement Board.

(iii) *Village Communities.* The rights of lessees of land in Village Communities are now provided for in the Land Act 1915. Certain unalienated Crown lands were surveyed into allotments of one to twenty acres. The price is not less than twenty shillings an acre. Additional areas may be acquired by conditional purchase. The rent is a nominal one for three years. The total amount of monetary aid advanced up to the 30th June, 1919, was £67,379, of which sum the amount repaid to date was £44,768. After three years a lease may be obtained.

On the 30th June, 1919, there were 346 settlers actually residing, and 146 not residing, but improving, making a total of 492 in occupation. Including wives and children the total number in residence was 1,360.

(iv) *Closer Settlement in the Irrigation Districts.* The movement for closer settlement in the irrigation districts started about eleven years ago, when the State adopted the policy of purchasing large areas of land commanded by irrigation schemes, and subdividing them for intensive culture. The management and supervision of these areas were formerly vested in two bodies—the Closer Settlement Board and the State Rivers and Water Supply Commission, but in order to do away with this dual control, the Amending Closer Settlement Act of 1912 (now incorporated in the Closer Settlement Act 1915) was passed, transferring to the Water Supply Commission the entire management, leasing, and general supervision of all such areas within irrigation districts. The State had expended between three and four million pounds on irrigation works, which were not being used to their full extent. Under the Goulburn Scheme, the largest of the State works, less than half the available water was being used, owing to lack of settlers to cultivate the land as irrigation requires. Previously, in the various districts the average size of farms varied from 400 to 600 acres, while under irrigation from about 12 to 80 acres will now give employment to a good-sized family and furnish them a comfortable living. The large farms of the irrigation districts could not be properly cultivated by their owners, and the only way to make irrigation a success was to subdivide these holdings and bring in farmers to cultivate the smaller areas. To this end the State offered to buy suitable land in any district having a reliable and ample water supply, at a price fixed by impartial expert valuers, and has purchased 180,300 acres for this purpose, and now administers also the irrigated closer settlements established on Crown lands at Merbein and Nyah, which contain respectively about 8,000 acres and 3,500 acres. This land is sold to settlers on 31½ years' terms with 4½ per cent. interest on deferred payments, under what are known as closer settlement conditions, which, while providing for the liberal terms and advances referred to in this paragraph, require, on the part of the settler or his successor, residence on the block for at least eight months in each year. These payments are calculated on the Crédit Foncier basis and are equalised through the whole period. As a result, the settlers by paying an additional 1½ per cent., or 6 per cent. in all, in 31½ years pay off both principal and interest. In the early stages of irrigated closer settlement the State undertook, where desired by settlers, to prepare portions of their holdings for irrigation by grading, seeding, check-banking, and constructing distributory channels, settlers being allowed to pay the cost of such works by instalments extending over ten years. The development of these settlements has, however, now reached such a stage that this is no longer necessary. Contract labour is available to new settlers, and there are facilities for the carrying-out of this work locally, but financial assistance to the same extent is still available. To further help the settler of limited means, the State will build a house and allow twenty years to pay for it. The cash payments required are as follows:—On houses costing less than £100, £10; on houses costing more, the cash payment varies from 12½ to 30 per cent. of the estimated cost. The State also makes loans to settlers equal to 60 per cent. of the value of permanent improvements, these loans to be repaid in twenty years. Five per cent. interest is charged on all advances—whether for houses, preparing land, or money furnished the

settler. In the case of discharged soldiers, the cash deposits on both land and houses are dispensed with, and further concessions can be made in the form of suspension of payment of instalments during the first one, two, or three years of occupation. Last year 540 blocks were granted to new settlers, 529 of whom were discharged soldiers. During the past ten years 129,000 acres have been settled in farms averaging fifty-three acres each—which are now the homes of 2,436 new settlers. There are also 153 allotments comprising 6,800 acres ready for immediate occupation, and a further 20,000 acres being prepared for settlers. At Shepparton, one of the oldest of these settlements, there are now 309 settlers living where there were originally twenty-six. At Cohuna, another early settlement, some settlers made such satisfactory progress, that they paid in full their land and other instalments, when their leases, which were for 31½ years, were only some seven years old. In Koyuga there are fifty settlers with good houses, many young orchards, fine crops of lucerne and vegetables, where in November 1910 there was not a house, a family, or an acre of cultivated land. There are now fifteen settlers' homes for every one that existed on these areas when re-purchased by the State. One thousand of the settlers are discharged soldiers.

The progress of settlers in the various irrigation districts continues to be most satisfactory. The prices being obtained for their products have enabled a very large number to improve their position, while the high values now placed on and being obtained for irrigation lands is convincing evidence of the great advance made during the last few years.

The volume of production from the irrigated districts is increasing at a most rapid rate. At the Shepparton co-operative cannery it is expected that, during the coming season, 3,000 tons of fruit will be processed. To cope with the further great expansion of output in sight, the Government has advanced to this company a further large amount for the installation of the most modern canning machinery. The cannery has proved a great boon to the district, and a large number of applications for fruit-processing plants have been received from other centres.

In other districts, such as Cohuna, Rochester, Swan Hill, and Tongala, there is also a gratifying change in the settlers' position, the splendid returns from dairying being responsible in a marked degree for the improvement; while at Werribee, which is fast becoming a great lucerne-producing centre, the returns received by the settlers last year from the sale of that fodder were most encouraging.

The Murray River Settlements, both at Nyah and Merbein, are each year becoming more prosperous. Already 200 qualified soldier settlers have been allotted irrigable blocks, but the demand for orchard lands in this part of the State has become so keen, that, with a view to fully meeting all requirements, the Commission acquired the large estate of 30,000 acres known as Red Cliffs, adjacent to Mildura Settlement. It contains irrigable land sufficient to provide holdings for about 1,000 soldiers.

The first portion of this estate between the Murray River and the Mildura Railway, now being prepared for settlement, will provide 300 irrigable holdings. Surveys are well forward, and other preparatory work, such as clearing, is providing employment for the soldiers pending the actual allocation of the blocks. In the meantime, another portion of the estate is being used as a nursery, in which some 2,000,000 vines are being propagated so that an adequate supply of rooted plants will be available for the ensuing season.

This settlement will be supplied with water from the Murray River by means of a powerful pumping plant, which will deliver the water through a concrete rising main into distributary channels lined with concrete to prevent seepage troubles.

It is anticipated that the new settlers on these areas will in a very few years be sharing in the general prosperity of this district.

5. Queensland.—(i) *Closer Settlement.* Under the provisions of the Act of 1906, private lands for closer settlement may be repurchased by the Crown, either by agreement or compulsorily.

(*a*) *Compulsory Acquisition.* The owner of an estate in possession, the whole of which is proposed to be taken compulsorily, has the right to retain in one block land of the value of £10,000 to £20,000, according to the value of the whole estate. The maximum sum which may be expended in any one year on the acquisition of land for the purpose of closer settlement is £500,000.

(*b*) *Disposal of Land.* A sufficient part of the land acquired must be set apart for roads, public reserves, and townships, and, up to the end of 1916, the remainder was proclaimed open for selection as agricultural farms under the Land Act 1910, which repealed the Land Acts 1897 to 1909, and under the Closer Settlement Act Amendment

Act of 1913, the term of the lease was 40 years. The rent to be paid for the first year was equal to £10 for every £100 of the purchasing price; and (no payment being required during the second, third, or fourth years) an annual payment of £6 6s. 0d. for every £100, which continued from the fifth to the fortieth year, would, at the end of the term, have paid off the principal sum together with interest. From 1st January, 1917, the opening of land for agricultural farm selection has not been allowed. Under the present law, the remainder of the land (after provision for roads, reserves, &c.) is opened for selection as perpetual lease selections at an annual rent fixed by the Minister, but at a rate per cent. of the capital value not more than the rate of interest paid by the Government on the purchase money of the estate of which the land forms part. The deposit of 10 per cent. is abolished, but so also is the provision that no rent need be paid during the second, third, and fourth years of the term. The rent may be reappraised for each period of fifteen years.

(c) *Areas Acquired and Selected.* The following table gives particulars of the operations under the above Acts at the end of the year 1901 and of each year from 1915 to 1919:—

QUEENSLAND.—CLOSER SETTLEMENT, 1901 AND 1915 TO 1919.

Year.	Number of Estates Acquired.	Total Area Acquired to Date.	Total Amount of Purchase Money.	Total Area Selected to Date. (a)
		Acres.	£	Acres.
1901	15	132,760	335,056	124,710
1915	29	664,363	1,713,165	582,788
1916	29	785,311	1,955,060	589,047
1917	30	785,311	1,955,060	587,724
1918	30	785,311	1,955,060	595,719
1919	30	785,311	1,955,060	692,153

(a) In addition, at the end of the year 1919 there were 12,320 acres sold at auction and 3,411 acres retained by the Government for experimental farms and for other sales.

The total area opened for selection up to the end of the year 1919 was 755,823 acres, of which 692,153 acres had been selected by 2,351 selectors. There remained 63,670 acres unselected or reserved. The total amount of rent paid up to the same date was £1,372,793, the amount in arrear being £53,245. At the end of the year 1919 there were 2,351 selectors holding 2,310 agricultural farms, 252 unconditional selections, 236 perpetual lease selections, five prickly-pear selections, and one perpetual lease prickly-pear selection. In addition, land and improvements to the value of £88,024 had been sold at auction.

(ii) *Group Settlement.* The Special Agricultural Selections Acts 1901 to 1905 were partly repealed by the Amending Act of 1909, which was in its turn repealed by the Land Act 1910. Under the last Act, land may be set apart for members of bodies of selectors who desire to settle in the same locality. The terms and conditions are similar to those in force for single selectors. Every group selection is subject to the condition of personal residence during the first five years of the term.

The Special Agricultural Selections Act 1905 provides that financial aid may be granted to all or any of the members of a body of selectors of agricultural homesteads. Advances may also be made to each selector for a value not exceeding £80 for the purpose of buying tools, rations, stock and poultry.

The portions opened for *group settlement* in 1919 numbered 585, and comprised a gross area of 260,994 acres. Up to the end of that year 490 portions, comprising 204,306 acres, valued at £276,930, had been applied for by members of the bodies of settlers for whom they were opened. This part of the Land Act is operated almost exclusively in the settlement of returned soldiers.

6. **South Australia.**—Under the provisions of the Crown Lands Acts the Commissioner may repurchase land for the purposes of closer settlement at a cost not exceeding £600,000 in any two years.

Reference is made on the next page to the provisions of the Irrigation and Reclaimed Lands Act 1908, as consolidated by the Act of 1914, regarding the settlement of reclaimed lands.

(i) *Disposal of Land.* The Crown Lands Act Further Amendment Acts enlarge the value of the blocks into which estates may be subdivided for closer settlement purposes from £2,000 to £4,000 unimproved value, or if the land is suitable for pastoral purposes only, to £5,000. The purchase-money, with interest thereon at a rate per annum as fixed, is payable in 128 half-yearly instalments.

For the first five years, improvements to the value of £3 for every £100 of the purchase money must be yearly effected.

(ii) *Areas Acquired and Selected.* The following table shews the area of land acquired by the Government in South Australia for the purposes of closer settlement, and the manner in which the same has been disposed of under the provisions of the Crown Lands Acts for the years 1902 and 1915 to 1919:—

SOUTH AUSTRALIA.—CLOSER SETTLEMENT, 1902 AND 1915 TO 1919.

Year.	Area of Lands Re-purchased to 31st Dec.	Agreements with Covenants to Purchase.	Total Area Leased as Homestead Blocks.		Perpetual Leases.	Miscellaneous Leases.	Sold.	Remainder Unoccupied (Including Roads).
			Right of Purchase.	Perpetual Lease.				
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1902	156,481	..	2,717	3,073	90,128	309	403	59,851
1915	666,299	487,853	753	1,579	51,588	164	65,484	58,878
1916	729,963	487,355	733	1,513	52,138	164	66,607	121,453
1917	743,101	501,439	703	1,531	71,896	144	112,642	54,886
1918	743,191	497,032	703	1,531	54,826	144	124,728	64,227
1919	748,080	508,720	609	1,477	54,116	144	133,460	50,163

During the financial year 1919-20, one property of 19,449 acres was repurchased. The total area repurchased at 30th June, 1920, was 768,138 acres. Of this area 61,853 acres have been transferred to the Forestry Department and the Repatriation Department. The purchase-money was £2,569,350. Of the total area 666,830 acres had been allotted to 2,774 persons, the average area to each being 240 acres.

(iii) *Irrigation Areas.* Under the Irrigation and Reclaimed Lands Act 1914, special provisions are made for granting perpetual leases of reclaimed lands. The maximum area of irrigable or reclaimed land one person may hold in any irrigation area is 50 acres, but in the case of partnerships 50 acres may be held by each partner up to a maximum of 150 acres. Land above the irrigating channels is also offered to lessees of irrigable blocks for dry farming, grazing, &c. Each block is offered under perpetual lease, at a rent not less than a sum equivalent to 4 per cent. on the unimproved value of the land, plus the cost of reclaiming. In the case of swamp lands in the reclaimed lands, a drainage rate of from 5s. to 7s. 6d. per acre per annum is payable. On the irrigable land the water rate has been fixed at 30s. per acre per annum for the first four years, after which an amount will be charged sufficient to cover actual cost of supplying water, and the interest on pumping plants, channels, &c. A sliding scale covers both the rent and water rates for the first four years.

Under Part V. of the Act a fund has been constituted called the Lessees of Reclaimed Lands Loan Fund, consisting of money provided by Parliament to be expended by the Department in assisting settlers on the irrigation areas by fencing, clearing and grading their blocks, and constructing irrigation channels and drains and concrete tanks thereon. Such improvements will be undertaken up to a value not exceeding £15 per acre of the irrigable area in each lessee's block, but before the work can be commenced a deposit must be paid equal to 15 per cent. of the Department's estimated value of such improvements.

The total cost of the work, less amount of deposit paid, will be treated as a loan to the lessee, and will be repayable in twenty equal annual instalments, after the expiration of five years, or at any shorter period if so desired by the lessee, current rate of interest being charged.

Any lessee will be permitted to accept the contract for carrying out his own improvements, according to the specifications and estimate of the Department, up to the maximum amount per acre, as mentioned above.

(iv) *Village Settlement.* Out of the reserved lands, the Commissioner is directed to set apart for the purpose of village settlement such land as he shall consider fit (*a*) for horticultural purposes, to be termed "horticultural land"; (*b*) for agricultural purposes, to be termed "commonage land"; and (*c*) land whereon any irrigation works are situated. Land so set apart is to be divided as follows:—Horticultural lands into blocks of as nearly as practicable equal unimproved value, and of about ten acres in extent; and the commonage lands into one or more blocks of such area as the Commissioner may determine, and the lands so set apart in each case form the district of the association. No person may hold more than two blocks. Commonage lands may only be leased to the association on perpetual lease, and all unleased horticultural blocks are under the control of the association. Every member of each association must provide or contribute towards the maintenance and regulation of irrigation works, and the care and cultivation of the commonage lands.

As the Waikerie and Kingston districts were proclaimed irrigation areas under the Irrigation and Reclaimed Lands Acts 1908 and 1909, this would leave only the Lyrup Village Settlement, which is in a better position, both financially and as regards population, than the others.

(v) *Homestead Blocks.* Aboriginal reservations, except those at Point McLeay or Point Pearse, and other suitable lands may be offered as homestead blocks on perpetual lease or agreement to purchase. Each block must not exceed £100 in value, and residence by a member of the family for at least nine months of every year is compulsory.

There is now hardly any demand for homestead blocks, persons generally preferring small blocks of repurchased or Crown lands on ordinary conditions. The system appears to be of value only in centres of population where work can be obtained, and within a reasonable distance of a school.

(*a*) *Advances to Blockholders.* Advances up to £50 may be made by the Commissioner to any homestead blockholder who has complied with the conditions of his lease or agreement, to assist in erecting permanent buildings on the blocks, or other improvements. Advances must be repaid, with interest at 4 per cent. per annum, by twenty equal instalments, commencing twelve months from the date of advance. The Commissioner may, in case of hardship, extend the time of repayment, such deferred payments bearing interest at 5 per cent. per annum. The total amount advanced up to the 30th June, 1920, was £41,411, of which £40,013 had been repaid.

(*b*) *Particulars of Homestead Blocks.* The total number of leases and agreements of which purchase had been completed to the 31st December, 1919, was 2,454, comprising 36,907 acres, at a purchase price of £90,635, or an average of £2 9s. per acre, the average of each holding of which purchase was completed being 15 acres.

7. **Western Australia.**—Under the Agricultural Lands Purchase Act 1909, which repealed and consolidated the Agricultural Lands Purchase Acts 1896 to 1904, sums not exceeding in the aggregate £400,000 may be expended on the repurchase of Crown lands near the railways, suitable for immediate cultivation.

(i) *Acquisition of Land by the Government.* For the purpose of carrying out the provisions of the Acts, a Land Purchase Board has been constituted. Advised by the report of the Board, the Minister, with the approval of the Governor, may make a contract for the acquisition of the land by surrender at the price fixed by the Board, or at any lesser price.

(ii) *Sale of Repurchased Land.* After reservation of part of the repurchased land for public purposes, the remainder is thrown open for selection. The maximum quantity held by one person must not exceed 1,000 acres, or in special cases 2,000 acres.

(iii) *Conditions of Sale to Selectors.* The maximum selling price of any repurchased land is equal to 105 per cent. of the actual cost of the land plus the cost of any improvements made upon it. A lease for twenty to thirty years is issued at a rent the half-yearly instalments of which are to be at the rate of £3 17s. 9d. for each £100 of the selling price. Improvements must be made to the value of one-fifth of the purchase-money every two years of the first ten years of the lease. One-half of the land must be fenced within the first five years and the whole within ten years. Loans may be granted to selectors under the provisions of the Agricultural Bank Acts.

(iv) *Areas Acquired and Selected.* The transactions conducted under the provisions of the Agricultural Lands Purchase Acts are shewn for 1901 and for each year from 1915 to 1920 in the subjoined table :—

WESTERN AUSTRALIA.—CLOSER SETTLEMENT, 1901 AND 1915 TO 1920.

(a) Year.	Total Area Acquired.	Total Purchase-money.	Roads, Reserves, &c.	Total Area made available for Selection.	Area Selected during the Year.	Total Area occupied to Date.	Balance of Area available for Selection.	Total Revenue received to Date.
	Acres.	£	Acres.	Acres.	Acres.	Acres.	Acres.	£
1901 ..	46,624	52,764	1,459	45,165	4,295	37,235	7,930	14,451
1914–15	446,804	421,373	15,825	430,979	4,122	272,190	158,789	239,409
1915–16	446,804	421,373	15,825	430,979	342	271,242	159,737	268,232
1916–17	446,804	421,373	15,825	430,979	77	269,648	161,331	295,740
1917–18	446,804	421,373	15,825	430,979	2,813	267,008	163,971	319,759
1918–19	446,804	421,373	15,825	430,979	38,890	304,937	126,002	343,767
1919–20	446,804	421,373	15,825	430,979	40,653	336,707	94,272	363,814

(a) The figures for 1901 are up to 31st December. For subsequent years they are given as up to 30th June.

On the 30th June, 1919, the total expenditure, exclusive of purchase-money but including interest, was £192,901, which left a balance of £150,866. At the same date the amount invested as sinking fund was £143,028.

(v) *Workingmen's Blocks.* Any person not already holding land within the State is entitled to obtain a lease of lands which have been surveyed and thrown open for selection as workingmen's blocks. The maximum area that may be selected by one person is, if within any town or goldfield, half an acre, or five acres elsewhere. The price is not less than twenty shillings per acre, payable in ten years by half-yearly instalments. Residence and improvement conditions must be fulfilled. At the expiration of the lease, or at any time after five years from the date of the commencement of the lease, upon compliance with all conditions, and upon payment of the full purchase-money and fee, a Crown grant will be issued. No person who has once held a workingman's block is allowed to select another, except under very special circumstances.

The following table shews the number and area of accepted applications for workingmen's blocks during each year, as well as the total number and area in existence at the end of the year 1901 and for each year from 1915 to 1920 :—

WESTERN AUSTRALIA.—PARTICULARS OF WORKINGMEN'S BLOCKS, 1901 AND 1915 TO 1920.

Year ..	1901.	1915.(a)	1916.(a)	1917.(a)	1918.(a)	1919.(a)	1920.(a)
NUMBER AND AREA OF ACCEPTED APPLICATIONS DURING YEAR.							
Number ..	2	Nil	1	Nil	Nil	Nil	1
Area in Acres	6	Nil	1	Nil	Nil	Nil	5
NUMBER AND AREA OF BLOCKS OCCUPIED AT END OF YEAR.							
Number ..	7	189(b)	176	134	108	83	68
Area in Acres	31	584	565	510	482	451	425

(a) For financial year ended 30th June. (b) Increase due to cancelled leases being reinstated.

During the years 1907 to 1911 residential blocks on the goldfields were made available as workingmen's blocks, instead of under residential lease.

8. **Tasmania.**—The principles of closer settlement were not introduced into Tasmania until the Closer Settlement Act of 1906 was passed. Under this Act, which was amended in 1908 and 1911, and consolidated in 1913, power is given to the Minister for Lands, on the recommendation of the Closer Settlement Board, to purchase compulsorily or by agreement private land in any part of Tasmania for the purpose of closer settlement, and also to deal with and dispose of any unoccupied Crown land for the same purpose.

(i) *Disposal of Land.* Lands so brought under the Act are subdivided into farm allotments of a suitable size—not exceeding £4,000 in value—and are disposed of by way of lease for 99 years. The rental is determined by the Board at a rate not exceeding 5 per cent. per annum on the capital value of the land. Any lessee who has fulfilled the conditions under the Act may, after the expiration of ten years of the term of the lease, purchase the land leased to him. The Minister has power to dispose of the fee simple of such land in any estate which is considered unsuitable for closer settlement.

A lessee must improve his holding to a value equal to 2½ per cent. on the capital value of the land in each of the first ten years of the term of his lease, and he must, within two years of the date of the lease, personally reside on his allotment during at least eight months of each of the following nine years. Provision is made for reserving a proportion of the allotments thrown open, and leasing the same, under special terms and conditions, to *bona fide* immigrants.

(ii) *Advances to Settlers.* The total advance by the Government in aid of the cost of effecting improvements to any one lessee must not exceed pound for pound of the sum expended by him in building and other improvements. Such advances must be repaid, together with interest at 5 per cent., in equal half-yearly instalments within a period not exceeding 21 years.

(iii) *Special Sales.* The fee simple of land acquired may be disposed of by sale on the recommendation of the Board as sites for churches, public halls, dairy factories, fruit-preserving factories, mills, or creameries. The area sold may not exceed one acre in the case of a church or public hall, or five acres in other cases.

(iv) *Areas Acquired and Selected.* Up to the 30th June, 1920, twenty-seven areas had been opened up for closer settlement. Particulars for ten years are given in the following statement:—

TASMANIA.—CLOSER SETTLEMENT, 1911 TO 1920.

Year.	Number of Farms made Available.	Number of Farms Allotted.	Area of Farms Allotted.	Rental of Farms Allotted.	Total Area Purchased.
			Acres.	£	Acres.
1911	37	36	4,965	168	5,143
1912	11	7	3,912	563	6,147
1913	18	21	5,652	1,134	3,745
1914	24	17	8,975	1,959	10,756
1915	36	53	15,153	4,393	12,930
1916	5	11	1,729	476	157
1917	5	15	3,900	993	1,939
1918	..	8	2,366	205	Nil
1919	..	..	..	Nil	Nil
1920	5	5	756	492	1,647

The total purchase money paid by the Government up to the 30th June, 1920, was £296,897.

9. **Northern Territory.**—In the Northern Territory, a Board is constituted to deal with assistance to settlers. In view of the unsuccessful attempts to establish Tropical Agricultural Settlement, the Board at present only grants assistance in exceptional cases. Preference is given to returned soldier applicants for pastoral lands, other things being equal. No other concession is granted by the Classification Board, but the Repatriation Department renders assistance for the purchase of stock, &c.

§ 9. Occupation of Crown Lands under Leases and Licenses Issued by Mines Departments.

1. ***Introduction.***—Leases and licenses for the occupation of Crown lands for mining and other purposes are issued by the Mines Departments in all the States. Such leases and licenses may be issued with respect to all Crown lands, whether otherwise unoccupied or whether occupied also under leases and licenses issued by the Lands Departments. Certain Crown lands, such as reserves, &c., are, however, subject to special conditions.

(i) *Mining on Private Lands.* Certain of the Crown lands of the several States have been alienated from time to time, subject to various reservations in respect of gold and other minerals which might afterwards be found therein. Other lands have been alienated without such reservation, but as the mineral gold does not pass from the Crown unless by express conveyance, it has remained the property of the State on all alienated lands. All lands alienated or in process of alienation are open to mining for gold; but to mining for other minerals, those lands only are open, in respect of which the rights are reserved in the grants. There are, however, generally certain reservations, such as those with reference to town or village lands and lands which have been built on or are used for special purposes. The working of minerals on private lands is regulated in the several States either by special Acts or by special provisions of the Acts relating to mining.

(ii) *Leases and Licenses Issued and Total Areas of Crown Lands Occupied.* The following tables shew the total areas of Crown lands for which leases and licenses for mining purposes were issued in each State during 1901, and for each year from 1915 to 1919 inclusive, and also the total areas of Crown lands occupied for mining purposes at the end of each year during the same period :—

CROWN LANDS, LEASES AND LICENSES FOR MINING PURPOSES, 1901 AND 1915 TO 1919.

Particulars.	N.S.W.	Victoria(a)	Q'land.(b)	S. Aust.(c)	W.Aust.(c)	Tas.(c)	C'wealth.
AREAS FOR WHICH LEASES AND LICENSES ISSUED.							
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901	50,349	..	55,698	93,985	37,593	18,125	(d)255,750
1915	14,219	10,103	56,518	965,596	37,989	13,919	1,098,344
1916	40,616	7,173	31,106	557,911	23,448	9,306	669,560
1917	72,334	7,618	15,842	268,749	28,160	7,515	400,218
1918	13,329	6,451	18,888	132,623	26,070	5,773	203,134
1919	17,959	7,032	24,371	58,796	69,950	7,685	185,793
TOTAL AREA OCCUPIED AT END OF YEAR.							
1901	134,209	..	124,182	14,140	66,682	50,362	(d)389,575
1915	224,621	108,773	242,196	1,012,427	145,920	53,060	1,786,997
1916	224,593	97,532	218,312	670,890	138,157	53,462	1,402,946
1917	231,981	68,599	221,647	274,003	113,656	54,391	984,277
1918	225,134	69,165	259,395	171,170	114,377	46,600	885,841
1919	229,884	48,561	313,833	144,347	145,307	46,491	928,423

(a) Including private lands, leases, and water right licenses only. (b) Exclusive of lands held under miners' rights only. (c) Exclusive of miners' rights. (d) Excluding Victoria.

2. **New South Wales.**—Under the provisions of the Mining Act 1906 and the regulations made thereunder, Crown lands may be occupied for mining or other purposes by virtue of (i) miners' rights; (ii) business licenses; (iii) authorities to prospect; or (iv) leases.

A description of the conditions under which these licenses and leases are granted may be found in previous issues of the Year Book. (See Year Book No. 6, p. 307.)

(i) *Particulars of Leases and Licenses Issued, 1919.* The following table gives particulars of leases and licenses of Crown lands issued by the Mines Department during the year 1919 :—

NEW SOUTH WALES.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT DURING YEAR 1919.

Particulars.	Act under which Issued.	Purpose for which Issued.	Area. 1919.
		To mine for—	Acres.
Leases—	Mining Act 1906	Gold	1,325
	" "	Minerals other than coal ..	10,183
	" "	Coal	2,694
	" "	Leases (mining purposes) ..	408
	Mining Act 1906 (Dredging) ..	Gold .. .. }	2,201
	" " " ..	Minerals other than gold }	
Other forms of occupancy—	Mining Act 1906	Authorities to prospect ..	1,148
Total ..	..	..	17,959

(ii) *Leases and Licenses Issued and Areas Occupied.* The following table gives particulars of the areas of Crown lands for which leases and licenses were issued by the Mines Department during each year, and of the total areas of Crown lands occupied under such leases and licenses at the end of the year 1901 and from 1915 to 1919 inclusive :—

NEW SOUTH WALES.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT, 1901 AND 1915 TO 1919.

Purposes for which Issued or Occupied.	1901.	1915.	1916.	1917.	1918.	1919.
LEASES AND LICENSES ISSUED.						
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining	2,272	3,657	2,558	1,310	2,418	3,526
Mining for other minerals ..	47,990	9,741	13,509	12,839	9,676	12,877
Authorities to prospect ..	..	439	24,036	57,978	1,076	1,148
Other purposes	87	382	513	207	159	408
Total	50,349	14,219	40,616	72,334	13,329	17,959
TOTAL AREAS OCCUPIED.						
Gold mining	6,942	11,098	10,767	9,422	9,356	9,262
Mining for other minerals ..	126,885	207,812	207,595	216,399	209,577	214,301
Authorities to prospect ..	..	15	218	40	10	706
Other purposes	382	5,696	6,013	6,120	6,191	5,615
Total	134,209	224,621	224,593	231,981	225,134	229,884

3. Victoria.—The occupation of Crown lands for mining and auxiliary purposes in this State is regulated by the Mines Act 1915. The Department of Mines is authorised to issue mining leases (gold-mining, mineral, and dredging), also licenses (searching, tailings, and water-right), while miners' rights and business licenses are issued by the Treasury Department, and claims and residence areas are registered by local mining registrars. A description of the conditions governing the issue of these leases and licenses will be found in previous editions of the Year Book. (See Year Book No. 6, p. 308.)

Licenses of auriferous lands not for mining purposes may be issued by the Lands Department.

Leases and Licenses Issued and Areas Occupied for Mining. Particulars of leases and licenses for mining purposes of Crown lands alone are not available, the official returns including also private lands. During the year 1920 the number of mining leases, licenses, &c., issued was 168, covering an area of 7,032 acres; the rent, fees, &c., received thereon amounted to £742. No particulars are available as to the total area of either Crown or private land occupied for mining purposes.

4. **Queensland.**—The occupation of Crown lands for mining purposes in this State is regulated by the Mining Acts 1898 to 1920, the Mining for Coal and Mineral Oil Act, The Petroleum Act, and the Miners' Homestead Perpetual Leases Act. Under these Acts the Department of Mines is authorised to issue (i) miners' rights; (ii) mining leases; (iii) mining leases and licenses for coal and mineral oil; and (iv) miners' homestead perpetual leases.

The conditions which govern the issue of miners' rights and mining leases are described in previous issues of the Year Book. (See Year Book No. 6, p. 309.) The Act under which Miners' Homestead Leases were granted has been amended, and the title is now "Miners' Homestead Perpetual Leases." Most of the old provisions remain, but rent is now perpetual, and is based on the value of the land:—If sold by auction 3 per cent. of the purchase price, otherwise 1½ per cent. of the capital value of the land. Rental is also subject to re-appraisement every ten years.

Mineral leases for coal may be granted for a term of 21 years at an annual rent of one shilling an acre, together with a royalty, according to the distance the lease is from a seaport or other place of delivery, of fourpence to sixpence per ton of coal raised during the first five years of the lease, and of eightpence to one shilling per ton during the remainder of the term. A lease for mineral oil with a maximum area of 320 acres may be granted for a term of 21 years at an annual rental of one shilling per acre, with a royalty of 5 per cent. of the value of all crude oil produced. Licenses to occupy not more than 2,560 acres may be granted to any person desiring to prospect Crown lands for coal and mineral oil upon payment of one penny for every acre comprised in the application.

Licenses to prospect for petroleum may be granted for areas up to 2,000 acres at a rental of one penny per acre, for a period of five years, and the licensee may during the currency of his license take portion of the area (60 acres) as a mineral lease at a peppercorn rental and a royalty of 12½ per cent. of the gross value of all petroleum obtained from such lease, and he is also entitled while he is occupying and working his lease to 2½ per cent. of the value of all petroleum which may be obtained from the balance of the land comprised in his original license.

Mineral leases up to 30 acres may be granted to mine for petroleum at a peppercorn rental and royalty of 12½ per cent. of gross value of oil obtained.

The "Mining on Private Land Act 1909" authorises the granting of leases, &c., on and under private land, under conditions as to compensation, &c.

(i) *Particulars of Leases and Licenses Issued, 1919.* The subjoined table gives particulars of the leases and licenses of Crown lands issued for mining purposes during the year 1919:—

QUEENSLAND.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT DURING YEAR 1919.

Lease or License.	Mining Leases.				Miners' Homestead Leases.	Coal Prospecting Licenses.	Miscellaneous Holdings.
Purpose for which issued.	To mine for gold.	To mine for minerals other than gold.	Tramways.	Buildings and machinery.	Residence, business, &c.	To prospect for coal.	Mining, residence, &c.
Area in acres	46	864	..	..	15,211	8,250	(a)8,000

(a) Approximate.

(ii) *Particulars of Areas Occupied.* The following table shews the areas for which leases and licenses of Crown lands were issued during each year, and the total area occupied at the end of the year 1901 and from 1915 to 1919 inclusive.

QUEENSLAND.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT, 1901 AND 1915 TO 1919.

Particulars.	1901.	1915.	1916.	1917.	1918.	1919.
LEASES AND LICENSES ISSUED DURING YEAR.(a)						
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining	3,581	581	102	479	254	46
Mining for other minerals ..	7,142	9,391	2,087	1,372	1,710	864
Other purposes	44,975	46,546	28,917	13,991	16,924	23,461
Total	55,698	56,518	31,106	15,842	18,888	24,371
TOTAL AREA OCCUPIED AT END OF YEAR.(a)						
Gold mining	11,296	4,736	3,508	2,882	2,726	2,136
Mining for other minerals ..	23,113	43,389	39,799	39,754	42,193	32,860
Other purposes	89,773	194,071	175,005	179,011	214,476	278,837
Total	124,182	242,196	218,312	221,647	259,395	313,833

(a) Exclusive of lands held under miners' rights only.

5. **South Australia.**—In this State leases and licenses for mining purposes are issued by the Department of Mines under the authority of the Mining Act 1893, and amending Acts. Under these Acts mining and prospecting are permitted in virtue of (i) miners' rights; (ii) mining leases; (iii) coal or oil leases; and (iv) miscellaneous leases, and in addition occupation of Crown lands is permitted by virtue of (v) business claims, and (vi) occupation licenses.

The conditions which govern the issue of these various leases and licenses have been described in previous issues of the Year Book. (See Year Book No. 6, p. 311.)

(i) *Particulars of Leases and Licenses.* The following table gives particulars of leases and licenses of Crown lands issued by the Mines Department during the years 1919 and 1920:—

SOUTH AUSTRALIA.—LEASES AND LICENSES ISSUED BY THE MINES DEPARTMENT DURING YEARS 1919 AND 1920.

Particulars.	Act under which Issued.	Purpose for which Issued.	Area.	
			1919.	1920.
		To mine for—	Acres.	Acres.
Leases ..	Mining Act 1893 ..	Gold and other metals and minerals	6,335	19,892
Mineral claims	" " " ..	" " " "	12,778	176,758
Licenses ..	Mining Act Amendment Act 1900..	To search for precious stones, mineral phosphates, oil, rare metals, minerals, and earths, the mining for which has not proved payable in any portion of the State ..	39,680	361,440
Occupation licenses	Mining Act 1893 ..	Occupation by miners	2	4
Total ..	..	..	58,795	558,094

(ii) *Leases and Licenses Issued and Areas Occupied.* The following table gives particulars of the areas of Crown lands for which leases and licenses were issued by the Mines Department during each year, and of the total area of Crown lands occupied under such leases and licenses at the end of the year 1901 and from 1915 to 1920 inclusive :—

SOUTH AUSTRALIA.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT, 1901 AND 1915 TO 1920.

Particulars.	1901.	1915.	1916.	1917.	1918.	1919.	1920.
LEASES AND LICENSES ISSUED. (a)							
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining ..	1,377	356	83	215	54	180	37
Mining for other minerals ..	92,587	965,226	557,819	268,527	132,562	58,614¼	578,053¼
Other purposes ..	21	14	9	7	7	2	3½
Total ..	93,985	965,596	557,911	268,749	132,623	58,796¼	578,093¾
TOTAL AREAS OCCUPIED. (a)							
Gold mining ..	14,140	1,840	1,505	1,509	1,240	967	758
Mining for other minerals ..	..	1,010,474	669,281	272,385	169,827	143,278¼	602,438
Other purposes ..	..	113	104	109	103	101½	101¼
Total ..	14,140	1,012,427	670,890	274,003	171,170	144,346¾	603,297¼

(a) Exclusive of miners' rights.

The following table shews the total area occupied (exclusive of miners' rights) at the end of the years 1919 and 1920, classified according to the nature of the holding :—

SOUTH AUSTRALIA.—TOTAL AREA UNDER MINING ACTS, 1919 and 1920.

Nature of Holding.	1919.		1920.	
	Number.	Area.	Number.	Area.
		Acres.		
Mineral leases	319	14,507	204	13,545
Gold leases	50	957	41	748
Gold dredging leases ..	..	..	..	..
Miscellaneous leases ..	97	22,173	105	22,692
Mineral claims	251	9,955	401	15,796
Occupation licences ..	203	101½	203	101¼
Search licences	47	81,920	192	381,440
Coal and oil claims ..	23	14,720	238	152,320
Gold claims	3	10	3	10
Coal and oil leases	..	..	26	16,640
Precious stones claims ..	7	3¼	11	5
Total	1,000	144,346¾	1,514	603,297¼

6. Western Australia.—The issue of leases and licenses by the Mines Department is regulated by the Mining Act 1904. Under this Act Crown lands may be occupied by virtue of (i) miners' rights; (ii) mining leases; and (iii) miners' homestead leases.

The conditions governing the issue of these leases and licenses are described in previous issues of the Year Book. (See Year Book No. 6, p. 312.)

(i) *Particulars of Leases and Licenses Issued, 1920.* The following table gives particulars of mining leases and licenses of Crown lands issued during 1920 :—

WESTERN AUSTRALIA.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT, 1920. (a)

Particulars.	Gold Mining.	Minerals other than Gold.	Miners' Homesteads.	Miscellaneous.	Total.
	Acres.	Acres.	Acres.	Acres.	Acres.
Leases ..	20,953	1,883	954	..	23,790
Licenses ..	15,114	35,716	..	79	50,909

(a) Exclusive of miners' rights.

(ii) *Particulars of Areas Occupied.* The following table shews the areas for which leases and licenses of Crown lands were issued during each year, and the total area occupied at the end of the year 1901 and from 1915 to 1920 inclusive :—

WESTERN AUSTRALIA.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT, 1901 AND 1915 TO 1920.

Particulars.	1901.	1915.	1916.	1917.	1918.	1919.	1920.
LEASES AND LICENSES ISSUED DURING YEAR. (a)							
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining ..	17,454	26,162	14,954	12,489	12,362	16,790	36,067
Mining for other minerals ..	19,281	9,389	6,647	14,819	12,981	52,661	37,599
Other purposes ..	858	2,438	1,847	852	727	499	1,033
Total ..	37,593	37,989	23,448	28,160	26,070	69,950	74,699
TOTAL AREA OCCUPIED AT END OF YEAR. (a)							
Gold mining ..	40,525	30,532	24,391	22,569	19,184	22,487	36,070
Mining for other minerals ..	14,091	70,146	69,405	48,778	49,952	84,381	96,036
Other purposes ..	12,066	45,242	44,361	42,309	45,241	38,439	38,485
Total ..	66,682	145,920	138,157	113,656	114,377	145,307	170,591

(a) Exclusive of miners' rights.

7. **Tasmania.**—Under the provisions of the Mining Act 1917, Crown lands in this State may be occupied for mining and auxiliary purposes by virtue of (i) prospectors' licenses; (ii) miners' rights; (iii) mining leases; and (iv) miscellaneous licenses. Business and residence licenses within mining areas may be issued by the Lands Department.

A description of the conditions under which these leases and licenses are issued may be found in previous editions of the Year Book. (See Year Book No. 6, p. 314.)

(i) *Particulars of Leases and Licenses Issued, 1920.* The following table shews particulars of leases and licenses of Crown lands, exclusive of prospectors' licenses and miners' rights, issued by the Mines Department during the year 1920 :—

TASMANIA.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT DURING 1920. (*a*)

Mineral.	1920. No.	1920. Area.	Mineral.	1920. No.	1920. Area.
		Acres.			Acres.
Asbestos	..	..	Scheelite	1	218
Barytes	2	120	Slate	4	642
Clay	1	19	Silver-lead	10	414
Coal	6	1,160	Tin	158	1,765
Copper	1	42	Wolfram	5	174
Gold	49	1,195	Dredging claims ..	5	38
Iron	1	80	Machinery sites ..	4	4
Limestone	..	..	Mining easements ..	13	87
Molybdenite ..	2	120	Water rights ..	69	47
Minerals, other ..	37	3,563	Zinc-lead	2	77
Ochre	1	5			
Osmiridium	1	10			
Pyrites	1	10	Total	373	9,790

(*a*) Exclusive of prospectors' licenses and miners' rights, which are issued by officers in different districts throughout the State, and as to which particulars are not available.

(ii) *Leases and Licenses Issued and Areas Occupied.* The following table gives particulars of the areas of Crown lands for which leases and licenses (exclusive of prospectors' licenses and miners' rights) were issued during each year, and of the total area of Crown lands occupied under such leases and licenses at the end of the year 1901 and from 1915 to 1920 inclusive :—

TASMANIA.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT, 1901 AND 1915 TO 1920. (*a*)

Particulars.	1901.	1915.	1916.	1917.	1918.	1919.	1920.
LEASES AND LICENSES ISSUED. (*a*)							
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining ..	1,067	520	684	784	294	205	1,195
Mining for other minerals ..	17,058	13,211	8,203	6,630	5,459	7,380	8,419
Other purposes ..	..	188	419	101	20	100	176
Total ..	18,125	13,919	9,306	7,515	5,773	7,685	9,790
TOTAL AREAS OCCUPIED. (*a*)							
Gold mining ..	3,394	2,026	1,692	1,761	657	537	1,403
Mining for other minerals ..	46,968	48,330	48,637	49,742	43,063	43,050	42,120
Other purposes ..	..	2,704	3,133	2,888	2,880	2,904	2,857
Total ..	50,362	53,060	53,462	54,391	46,600	46,491	46,380

(*a*) See note to preceding table.

8. **Northern Territory.**—The granting of leases and licenses for mining purposes in the Northern Territory is under the control of the Administrator. The area of land held under Mining Regulations in the Northern Territory has been previously referred to in § 7 of this chapter (page 180).

§ 10. Resumption by Crown of Alienated Lands.

1. General.—Under various Acts, alienated lands may be compulsorily resumed by the Crown in the several States for certain purposes, generally connected with works of a public nature. Resumptions for closer settlement purposes have already been referred to (see § 8 above). In most of the States there are Lands Clauses or similar Acts providing the machinery, and indicating the procedure to be adopted in assessing the compensation to be paid by the Crown to private owners in cases where the parties have failed to agree as to the amount to be paid. The provisions of these Acts are generally incorporated in the special Acts specifying the purposes for which alienated lands may be resumed. Lands leased for pastoral purposes may generally be resumed by the Crown on short notice. The lessee is ordinarily entitled to compensation for land resumed, for loss or depreciation in value of the lease caused by such resumption, and for improvements.

(*a*) *Commonwealth Territory.* Lands may be resumed under the Lands Acquisition Act 1906–18.

(*b*) *New South Wales.* Alienated lands may be recovered by the Crown for authorized works and certain public purposes under the provisions of the Public Works Act 1912, and in other cases may be acquired by the Crown by purchase, gift, or surrender under Executive authority. Alienated lands required for public roads may be resumed under the Public Roads Act 1902, and if containing gold may be resumed for mining under section 72 of the Mining Act 1906. Lands dedicated or granted by the Crown for public purposes may be resumed under Section 25 of the Crown Lands Consolidation Act 1913, and section 1 of the Public Trusts Act 1897. Surrender and exchange of lands alienated or in process of alienation may be carried out under section 195 of the Crown Lands Consolidation Act 1913.

(*c*) *Victoria.* In Victoria, lands may be resumed in accordance with the provisions of the Lands Compensation Act 1915, the Public Works Act 1915, the Railways Lands Acquisition Act 1915–1918, the Land Act 1915, the Local Government Act 1915, the Water Act 1915, and the Forests Act 1915.

(*d*) *Queensland.* In this State, alienated lands may be resumed under the provisions of the Public Works Land Resumption Acts 1906 to 1917 for any of the purposes specified in section 4 of that Act.

(*e*) *South Australia.* In this State the principal Acts under which land is repurchased for public works are the Railway Commissioners Act 1887, the Water Conservation Acts 1886, 1889, and 1900, the Waterworks Act 1882, the Sewers Act 1878, Land for Public Purposes Act 1914, and the Lands Clauses Consolidation Act 1847 to 1918.

(*f*) *Western Australia.* In Western Australia private lands may be resumed under the provisions of the Land Act 1898, the Roads Act 1911, Agricultural Lands Purchase Act, and the Public Works Act 1902.

(*g*) *Tasmania.* Alienated lands in Tasmania may be resumed under the provisions of the Land Vesting Act 1894, by agreement; under the Public Works and Crown Lands Acts, by arbitration; and under the Lands Resumption Act 1910, compulsorily.

(*h*) *Northern Territory.* The Lands Acquisition Ordinance 1911 provides for resumption.

2. Areas Resumed.—Particulars of land resumed by the States for public works, &c., are not available.

§ 11. Alienation and Occupation of Crown Lands in the Several States.

1. Introduction.—The tables given in the previous parts of this section shew separately the areas alienated, in process of alienation, and occupied under various tenures in the several States. The tables given below shew collectively the general condition of the public estate in each State, having regard to (*a*) the area alienated absolutely, which includes free grants, sales, and conditional purchases for which grants have been issued, the conditions having been complied with; (*b*) the area in process of alienation, comprising holdings for which the fee simple has not yet been alienated, but which are in process of sale under systems of deferred payments; (*c*) the area occupied under all

descriptions of leases and licenses; and (*d*) the area unoccupied, which, ordinarily, includes roads, permanent reserves, forests, &c. In some cases, however, lands which are permanently reserved from alienation are occupied under leases and licenses, so that in such cases the areas reserved are comprised in class (*c*) and not in class (*d*). Particulars of leases and licenses of reserved areas, as distinguished from leases and licenses of other lands, are not available. It should be observed that in many cases lands occupied under leases or licenses for pastoral purposes are held on short tenures only, and could thus be made available for settlement practically whenever required.

2. *New South Wales.*—The total area of the State of New South Wales (exclusive of Commonwealth Territory) is 198,036,500 acres, of which on the 30th June, 1920, 41,885,762 acres, or about one-fifth, were alienated absolutely; 20,876,424 acres, or about one-tenth, were in process of alienation; 115,861,222 acres, or upwards of three-fifths, were occupied under Lands Department, Western Land Board, or Mines Department leases and licenses. The next table shews the areas alienated, in process of alienation, held under leases and licenses, and unoccupied, in 1901 and from 1915-16 to 1919-1920.

During the year 1919-20, a total area of 671,327 acres became available for Crown leases, homestead farms, suburban holdings, additional holdings, &c. Of this area, 1,524 acres were made available for irrigation farms and allotments, and 23,454 acres were acquired under the Closer Settlement Promotion Act. In addition, 1,422,625 acres were made available for soldiers' settlement.

NEW SOUTH WALES.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 AND 1916 TO 1920.(*a*)

Particulars.	Area in Acres.					
	1901.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
1. *Alienated.*						
Granted and sold by private tender and public auction, at prices ranging from five to twenty shillings per acre, prior to 1862	7,146,579	7,146,579	7,146,579	7,146,579	7,146,579	7,146,579
Sold by auction and other sales, 1862 to date	14,638,888	14,916,901	14,917,287	14,922,516	14,933,719	14,849,209
Conditionally sold, 1862 to date..	4,212,189	16,571,958	16,929,786	17,318,124	17,887,903	18,564,288
Granted under Volunteer Land Regulations, 1867 to date ..	168,545	172,198	172,198	172,198	172,198	172,198
Granted for public and religious purposes	241,968	238,560	239,339	239,840	240,222	240,915
Homestead selections and grants	35,385	1,317,120	1,256,036	1,055,915	985,914	912,573
Total area alienated ..	26,443,554	40,363,316	40,661,225	40,855,172	41,366,535	41,885,762
2. *In Process of Alienation.*						
Under system of deferred payments	20,044,703	18,315,181	18,693,915	19,225,824	19,435,807	19,365,856
Under system of homestead selections (including leases converted, but excluding grants issued)	1,550,985	(*b*)	(*b*)	(*b*)	(*b*)	(*b*)
Closer settlement purchases ..	..	1,094,475	1,153,822	1,244,203	1,288,407	1,510,568
Total area in process of alienation	21,595,688	19,409,656	19,847,737	20,470,027	20,724,214	20,876,424
3. *Held under Leases and Licenses.*						
Total under Lands Department and Western Land Board ..	126,921,161	118,641,247	117,015,259	116,159,073	115,110,607	115,631,338
Mineral and auriferous leases and licenses (Mines Department)	134,209	224,621	224,593	231,981	225,134	229,884
Total leases under all Government Departments ..	127,055,370	118,865,868	117,239,852	116,391,054	115,335,741	115,861,222
4. *Unoccupied* ..	23,543,488	19,397,660	20,287,586	20,320,247	20,610,010	19,412,092

Area of State (exclusive of Commonwealth Territory)—198,036,500 acres.

(*a*) The figures for 1901 are up to the 31st December, while for the other years given they are up to the 30th June. (*b*) Now included under Homestead grants.

3. Victoria.—The total area of the State of Victoria is 56,245,760 acres, of which 24,605,825 acres, or about three-eighths, had been alienated absolutely up to the end of the year 1919; 8,811,478 acres were in process of alienation under deferred payments and Closer Settlement Schemes; and 10,944,854 acres were occupied under leases and licenses (exclusive of leases and licenses held under the Mines Department). The following table shows the areas alienated and in process of alienation, together with the areas reserved, leased, and available for occupation at the end of the year 1901 and from 1915 to 1919:—

VICTORIA.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 AND 1915 TO 1919.

Particulars.	Area in Acres.					
	1901.	1915.	1916.	1917.	1918.	1919.
1. *Alienated*	20,066,875	24,256,222	24,345,425	24,427,467	24,503,531	24,605,825
2. *In Process of Alienation*—						
Exclusive of Mallee, &c. ..	3,587,668	2,025,172	2,069,321	2,059,101	2,051,422	2,022,873
Mallee Lands	87,606	5,534,655	5,682,094	5,500,708	5,511,340	6,259,742
Under Closer Settlement Acts	..	494,965	507,500	518 068	527,237	514,128
Village Settlements ..	55,077	20,861	19,989	18,175	16,888	15,235
Total	3,730,351	8,075,653	8,278,904	8,096,052	8,106,887	8,811,478
3. *Leases and Licenses Held*—						
Under Lands Department ..	17,110,709	13,035,612	12,433,959	12,383,810	10,649,247	10.944,854
Under Mines Department(a)	..	..	..	..	..	..
4. *Unoccupied Crown Lands*(b) ..	15,337,825	10,878,273	11,187,472	11,338,431	12,986,095	11,883,603

Total area of State—56,245,760 acres.

(a) Not available. (b) Including leases and licenses held under the Mines Department, which are not available.

Crown lands in Victoria include roads, 1,751,757 acres; water reserves, 313,702 acres; agricultural colleges, &c., 85,882 acres; State forests and timber reserves (under Forest Act), 4,129,000 acres; State forests and timber reserves under Land Acts, 330,600 acres; reserves in the Mallee, 397,881 acres; unsold land in towns, &c., 1,936,645 acres; and other reserves, 303,000 acres.

4. Queensland.—The total area of this State is 429,120,000 acres, of which, on the 31st December, 1919, 16,893,719 acres, or about one twenty-fifth, were alienated absolutely; 9,064,089 acres, or about one forty-seventh, were in process of alienation; 326,783,036 acres, or about three-quarters, were occupied under leases and licenses; roads, reserves, &c., occupied 16,858,444 acres, the remaining 59,520,712 acres being unoccupied. From 1901 to 1919 the area alienated absolutely increased by 3,360,251 acres, or 24.8 per cent., and the area in process of alienation by 6,272,425 acres, or 225 per cent.

The following table shews the areas alienated absolutely, the areas in process of alienation, and the areas held under various forms of lease and license at the end of the year 1901 and from 1915 to 1919 :—

QUEENSLAND.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 AND 1915 TO 1919.

Particulars.	Area in Acres.					
	1901.	1915.	1916.	1917.	1918.	1919.
1. *Alienated Absolutely.*						
By Purchase	13,462,304	16,360,715	16,483,906	16,583,135	16,684,981	16,806,983
Without Payment	71,164	86,667	86,684	86,702	86,736	86,736
Total	13,533,468	16,447,382	16,570,590	16,669,837	16,771,717	16,893,719
2. *In Process of Alienation*	2,791,664	10,776,793	10,566,829	10,215,839	9,763,261	9,064,089
3. *Occupied under Leases and Licenses.*						
Runs in Settled Districts ..	176,000	223,896,160	215,950,840	211,581,200	212,439,720	211,030,440
" Unsettled Districts ..	222,553,760					
Occupation Licenses ..	35,103,600	45,609,260	44,610,240	40,929,360	40,694,600	36,500,960
Grazing Farms and Homesteads	21,793,212	62,568,511	64,773,601	67,292,732	71,091,155	76,437,422
Scrub Selections	272,946	218,648	206,155	206,154	206,153	166,899
Leases Special Purposes ..	249	158,045	173,290	186,592	202,364	210,201
Under Mines Department ..	124,152	267,195	238,311	241,647	279,390	333,834
Perpetual Lease Selections ..	..	112,065	228,876	527,133	954,623	2,005,337
Auction Perpetual Leases ..	..	..	2,479	5,278	7,041	7,943
Total	280,023,979	332,824,904	326,192,702	320,970,096	325,875,052	326,783,036
4. *Roads and Reserves* ..	..	15,793,438	15,857,492	16,827,711	16,780,386	16,858,444
5. *Unoccupied*	132,770,889	53,277,483	59,932,387	61,436,517	59,929,584	59,520,712

Total area of State—429,120,000 acres.

The area open for selection (as distinguished from occupation for purely pastoral or special purposes) under every mode at the beginning of the year 1919 was 16,434,004 acres, and the area opened during the year was 5,316,683 acres, while the area withdrawn was 1,198,063 acres. The area selected was 7,764,507 acres, and the area remaining open at the end of the year was 12,788,117 acres. The number of grazing selections was 488 as against 385 in the previous year, and their gross area 6,531,977 acres, as against 5,709,287 acres.

5. **South Australia.**—The area of the State of South Australia is 243,244,800 acres. In this State, at the end of the year 1919, there were 10,857,816 acres, or about one twenty-fourth, alienated absolutely ; 3,038,084 acres, or about one-eightieth, were in process of alienation ; 114,288,149 acres, or about one-half, were occupied under leases and licenses ; while the remaining 115,060,751 acres were unoccupied. The subjoined table shews for South Australia the areas of land alienated absolutely, and in process of alienation under deferred payments, and the area held under different forms of leases :—

SOUTH AUSTRALIA.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 AND 1915 TO 1919.

Particulars.	Area in Acres.					
	1901.	1915.	1916.	1917.	1918.	1919.
1. *Alienated*—						
Sold	7,413,510	10,467,883	10,544,779	10,608,162	10,655,953	10,727,484
Granted for Public purposes ..	121,613	122,873	129,429	129,679	129,988	130,332
Total ..	7,535,123	10,590,756	10,674,208	10,737,841	10,785,941	10,857,816

SOUTH AUSTRALIA.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 AND 1915 TO 1919—*continued.*

Particulars.	Area in Acres.					
	1901.	1915.	1916.	1917.	1918.	1919.
2. *In Process of Alienation*	553,774	2,943,395	3,039,292	3,104,763	3,025,168	3,038,084
3. *Held under Lease and License*—						
Right of Purchase ..	5,639,510	2,574,640	2,504,143	2,440,731	2,402,355	2,329,100
Perpetual	7,115,782	14,943,771	14,851,173	14,810,026	14,625,839	14,650,223
Pastoral	68,916,125	95,756,850	95,016,370	100,889,010	95,264,050	96,368,450
Other Leases and Licenses ..	3,905,729	1,144,683	1,128,630	1,049,522	617,654	806,029
Mining Leases and Licenses (*a*) ..	14,140	976,489	670,890	247,933	171,170	144,347
Total ..	85,591,295	115,396,433	114,171,206	119,437,222	113,081,068	114,298,140
4. *Total Occupied* ..	93,680,192	128,930,584	127,884,706	133,279,826	126,892,175	128,184,049
5. *Area Unoccupied* ..	149,564,608	114,314,216	115,360,094	109,964,974	116,352,625	115,060,751

Total area of State—243,244,800 acres.

(*a*) Exclusive of miners' rights.

6. **Western Australia.**—The total area of Western Australia is 624,588,800 acres, of which on the 30th June, 1919, 8,605,479 acres, or about one seventy-fourth part, were alienated absolutely; 13,237,947 acres, or about one forty-eighth part, were in process of alienation; while 245,449,497 acres, or nearly two-fifths, were occupied under leases and licenses issued either by the Lands or the Mines Departments. The remaining 357,295,877 acres, or nearly three-fifths, were unoccupied.

The following table shows the areas alienated absolutely and conditionally, and the areas held under leases and licenses at the end of the year 1901 and on 30th June, 1916, to 1920:—

WESTERN AUSTRALIA.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 AND 1915 TO 1920.

Particulars.	Area in Acres.					
	1901.	*1915–16.(a)*	*1916–17.(a)*	*1917–18.(a)*	*1918–19.(a)*	*1919–20.(a)*
1. *Absolutely Alienated* ..	3,468,878	8,125,629	8,276,084	8,462,085	8,605,479	(*b*)
2. *In Process of Alienation*—						
Midland Railway Concessions	2,768,810	54,800	54,800	54,800	54,800	54,800
Free Homestead Farms	283,455	1,404,237	1,351,461	1,288,866	1,228,844	1,186,436
Conditional Purchases	1,349,554	7,911,998	7,673,356	11,487,291	11,626,805	12,543,135
Selections from the late W.A. Company ..	75,213	3,728	3,088	2,289	2,193	2,193
Selections under the Agricultural Lands Purchase Act ..	37,235	259,055	255,305	247,196	280,250	427,470
Special Occupation Leases and Licenses	3,867	1,398	1,398	1,396	1,298	1,298
Homestead or Grazing Leases	296,425	3,901,011	3,897,471	..	..	..
Poison Land Leases or Licenses	1,306,270	47,252	47,252	43,275	43,275	42,274
Immigrants' Grants ..	400	..	..	..	..	..
Village Allotments ..	6	32	32	31	30	29
Working-men's Blocks	31	565	558	482	452	425
Total in Process of Alienation ..	6,116,266	13,584,076	13,284,721	13,105,628	13,237,947	14,258,060

(*a*) Figures are now given up to 30th June. (*b*) Not available.

WESTERN AUSTRALIA.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 AND 1916 TO 1920—*continued.*

Particulars.	Area in Acres.					
	1901.	1915–16.(*a*)	1916–17.(*a*)	1917–18.(*a*)	1918–19.(*a*)	1919–20.(*a*)
3. *Leases and Licenses in Force*—						
(i) *Issued by Lands Department*						
Pastoral Leases ..	96,508,549	193,023,620	189,574,945	204,820,869	241,697,020	253,436,308
Special Leases	448	37,559	33,516	38,285	58,584	54,711
Leases of Reserves ..	5,296	2,301,587	1,582,174	1,629,115	2,139,541	2,399,237
Selections on Goldfields ..	3,955	..	..	..	..	..
Timber Leases and Licenses	865,180	(*b*)654,550	(*b*)249,144	(*b*)627,160	(*b*)625,186	(*c*)
Timber Permits ..	..	(*b*)608,594	(*b*)908,850	(*b*)823,209	(*b*)819,520	(*c*)
Residential Lots ..	550	268	274	269	269	284
(ii) *Issued by Mines Department*						
Gold Mining Leases ..	34,086					
Mineral Leases	6,576	(*b*)145,920	(*b*)386,350	(*b*)113,656	(*b*) 114,377	145,307
Other Leases	8,623					
Licenses	17,397					
Total under Leases and Licenses	97,450,660	196,772,098	192,735,258	208,052,623	245,449,497	(*c*)
4. *Area Unoccupied*	517,552,996	406,106,997	410,292,742	394,968,464	357,295,877	(*c*)

Total area of State—624,588,800 acres.

(*a*) Figures are now given as up to the 30th June. (*b*) On the previous 31st December. (*c*) Not available.

7. **Tasmania.**—Of the total area of Tasmania, namely, 16,777,600 acres, there were at the end of the year 1919, 5,241,292 acres, or about three-tenths, alienated absolutely; 1,054,111 acres, or about one-sixteenth, were in process of alienation; 2,003,661 acres, or about one-eighth, were occupied under leases and licenses for either pastoral, agricultural, timber, or mining purposes; or for closer or soldier settlement; or occupied or reserved by the Crown; the remaining 8,478,536 acres, or about one-half, being unoccupied. The following table shews the areas alienated, in process of alienation, and held under lease or license, and the area unoccupied at the end of the year 1901 and from 1915 to 1919. Closer Settlement leased areas are in the latter two years not included in the area alienated absolutely, although the settlers have begun to exercise their right of purchase, which right becomes operative ten years after date of lease :—

TASMANIA.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 AND 1915 TO 1919.

Particulars.	Area in Acres.					
	1901.	1915.	1916.	1917.	1918.	1919.
1. *Alienated Absolutely* ..	4,621,585	5,125,197	5,179,865	5,155,511	5,197,283	5,241,292
2. *In Process of Alienation* ..	272,376	1,225,924	1,244,014	1,184,061	1,122,797	1,054,111
3. *Leases or Licenses*—						
(i) *Issued by Lands Department*						
Islands	149,165	204,630	207,630	197,406	197,918	151,000
Ordinary Leased Land ..	1,280,688	1,458,068	1,434,113	1,193,169	1,201,169	1,341,000
Land Leased for Timber ..	40,768	120,832	146,881	155,889	183,804	216,784
Closer Settlement ..	..	(*a*) 66,307	(*a*) 65,781	69,067	68,163	68,163
Soldier Settlement ..	..	..	..	3,430	17,556	60,223
(ii) *Issued by Mines Department*	50,362	53,060	53,462	54,391	46,600	46,491
(iii) *Occupied by Commonwealth and State Departments* ..	..	14,315	16,026	17,150	17,206	18,000
(iv) *Reserved for Public Purposes*	..	95,900	96,473	99,500	100,000	100,000
Total	1,520,983	1,939,905	1,954,585	1,790,022	1,832,416	2,003,661
4. *Total Area Occupied* ..	6,414,944	8,291,026	8,378,464	8,129,594	8,152,496	8,299,064
5. *Area Unoccupied*	10,362,656	8,486,574	8,399,136	8,648,006	8,625,104	8,478,536

Total area of State—16,777,600 acres.

(*a*) Included in 1. *Alienated Land.*

8. **Northern Territory.**—On the 1st January, 1911, the Northern Territory was taken over by the Commonwealth. In the Northern Territory at the end of the year 1920, there were 476,556 acres, or only about one seven-hundred-and-fourth part, alienated absolutely; 143,274,151 acres, or more than two-fifths, were held under leases and licenses; while the remaining 191,366,093, or nearly three-fifths, were unoccupied. The following table shews the area of land alienated absolutely, and also the area under lease :—

NORTHERN TERRITORY.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 AND 1916 TO 1920.

Particulars.	Area in Acres.					
	1901.	1916.	1917.	1918.	1919.	1920.
1. *Alienated*—						
Sold	473,230	475,494	475,494	476,428	476,428	476,508
Granted for Public Purposes	48	48	48	48	48	48
Total Alienated ..	473,278	475,542	475,542	476,476	476,476	476,556
2. *Leased*—						
Right of Purchase ..	1,067	436	436	436	436	356
Pastoral	111,476,240	110,560,129	103,993,600	64,964,864	93,669,760	106,503,680
Other Leases	1,176,981	109,353	108,387	41,365,975	29,048,010	36,770,115
Total Leases	112,654,288	110,669,918	104,102,423	106,331,275	122,718,206	143,274,151
3. *Total Occupied*	113,127,566	111,145,460	104,577,965	106,807,751	123,194,682	143,750,707
4. *Remainder Unoccupied*(a) ..	221,989,234	223,971,340	230,538,835	228,309,049	211,922,118	191,366,093

Total area of Northern Territory—335,116,800 acres.

(a) Including Aboriginal and other reserves, and Mission stations.

§ 12. Classification of Holdings According to Size.

1. **General.**—The classification of holdings according to their area is of interest chiefly in relation to the efforts made by the several States in recent years to promote settlement on the land on blocks of suitable size, especially by means of the Closer Settlement Acts. Returns shewing such a classification are not available for Queensland and the Northern Territory.

The following table gives particulars of the number of holdings in area series, as returned to the collectors of agricultural and pastoral statistics, for all the States excepting Queensland, and for the Federal Capital Territory, to the latest available date :—

CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES.

Size of Holdings.	N.S.W. 1919-20. (b)	Victoria. 1918-19.	S. Aust. 1919-20.	W. Aust. 1919.	Tasmania. 1919-20.	Federal Territory. 1919-20. (b)
	NUMBER.					
Acres.						
1 and under 50 ..	22,404	20,866	7,120	8,670	4,546	4
50 „ 100 ..	8,251	8,036	1,822	635	2,428	5
100 „ 500 ..	26,323	26,246	6,024	2,952	5,237	27
500 „ 1,000 ..	10,362	11,224	4,061	3,170	771	17
1,000 „ 5,000 ..	9,105	5,865	3,991	4,187	731	16
5,000 „ 10,000 ..	1,045	290	121	235	130	5
10,000 „ 20,000 ..	485	117	46	93	62	..
20,000 „ 50,000 ..	229	35	16	22	31	1
50,000 and over	75	..	..	4	6	..
Total	78,279	72,679	23,221	15,028	13,942	75

(b) See note (a) on next page.

CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES—*continued.*

Size of Holdings.	N.S.W. 1919–20. (a)	Victoria. 1918–19.	S. Aust. 1919–20.	W. Aust. 1919.	Tasmania. 1919–20	Federal Territory. 1919–20. (a)
			AREA.			
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1 and under 50 ..	445,367	370,426	114,710	45,315	73,727	128
50 " 100 ..	645,308	572,349	130,551	53,163	167,847	395
100 " 500 ..	6,813,150	6,517,118	1,728,995	785,684	1,070,054	7,196
500 " 1,000 ..	7,288,039	7,763,815	2,925,089	2,598,159	522,912	12,609
1,000 " 5,000 ..	18,121,820	10,117,530	6,020,046	8,339,596	1,528,491	30,344
5,000 " 10,000 ..	7,149,492	1,996,600	820,240	1,967,041	905,046	34,309
10,000 " 20,000 ..	6,617,494	1,621,460	648,820	1,266,784	803,483	..
20,000 " 50,000 ..	6,645,580	1,016,847	475,913	846,600	812,815	21,850
50,000 and over	6,578,334	..	..	304,000	598,378	..
Total	60,304,593	20,076,151	13,791,364	16,206,342	6,482,753	106,831

(a) In New South Wales, including Federal Capital Territory, an alteration was made in 1919-20 regarding the smaller holdings included in the classification. In previous years, many holdings (nearly all from 1 to 5 acres in extent), which were not used for agricultural or pastoral purposes, were included. In 1919-20, there were included only holdings on which improvements had been effected and upon which agricultural or pastoral activities were conducted.

2. **New South Wales.**—The total number of holdings of one acre and over in area in this State on the 31st March, 1901, was 69,439. On the 31st March, 1920, the corresponding number was 78,279. The following table shews the number of holdings for which returns were received for 1900–1 and the years 1913–14 to 1919–20, except 1916–17 and 1917–18, figures for which are not available :—

NEW SOUTH WALES.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES, 1901 AND 1914 TO 1920.

Size of Holdings.	1900–01.	1913–14.	1914–15.	1915–16.	1918–19.	1919–20.
Acres.	Number.	Number.	Number.	Number.	Number.	Number.
1 to 50 ..	28,155	39,268	39,602	40,033	41,732	22,404
51 " 100 ..	8,029	8,923	8,771	8,586	8,291	8,251
101 " 500 ..	20,504	26,493	26,576	26,405	25,978	26,323
501 " 1,000 ..	6,105	8,842	9,068	9,326	9,982	10,362
1,001 " 5,000 ..	4,464	7,529	7,777	7,971	8,723	9,105
5,001 " 10,000 ..	579	889	928	942	1,014	1,045
10,001 " 20,000 ..	352	394	380	411	455	485
20,001 " 50,000 ..	202	235	231	233	233	229
50,001 and over ..	149	82	78	76	72	75
Total	69,439	92,655	93,420	93,983	96,480	78,279

3. **Victoria.**—The following table shews the number and area of holdings on the 1st March of those years for which figures are available :—

VICTORIA.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES, 1906 TO 1919.

Size of Holdings.	1906.	1908.	1910.	1912.	1919.
Acres.	Number.	Number.	Number.	Number.	Number.
1 to 50	13,309	14,692	16,609	18,757	20,866
51 " 100	5,864	6,223	6,696	7,356	8,036
101 " 500	21,628	22,510	23,397	24,735	26,246
501 " 1,000	7,688	7,817	8,216	10,181	11,224
1,001 " 5,000	4,083	4,409	4,908	5,364	5,865
5,001 " 10,000	220	231	239	267	290
10,001 " 20,000	116	118	131	116	117
20,001 " 50,000	73	61	42	34	35
50,001 and over	6	4	2	1	..
Total ..	52,987	56,065	60,240	66,811	72,679

4. **South Australia.**—In the State of South Australia the classification of holdings was available for the first time in 1910–11. The following table shews the number and area of such holdings for that and some later years, for which returns are available :—

SOUTH AUSTRALIA.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES, 1910–11 TO 1919–20.

Size of Holdings.	1910–11.	1914–15.	1915–16.	1916–17.	1918–19.	1919–20.
Acres.	Number.	Number.	Number.	Number.	Number.	Number.
1 to 50 ..	6,745	7,013	7,195	7,272	7,204	7,120
51 „ 100 ..	1,646	1,778	1,793	1,867	1,840	1,822
101 „ 500 ..	5,542	5,801	6,033	6,016	5,953	6,024
501 „ 1,000 ..	3,370	3,835	3,977	4,057	4,050	4,081
1,001 „ 5,000 ..	2,540	3,417	3,794	4,006	4,132	3,991
5,001 „ 10,000 ..	110	114	125	127	114	121
10,001 „ 20,000 ..	53	41	42	43	49	46
20,001 „ 50,000 ..	23	23	24	24	23	16
50,001 and over ..	1	1	..	..	..	..
Total ..	20,030	22,023	22,983	23,412	23,365	23,221

5. **Western Australia.**—In this State the number of holdings of one acre and over in area was 5,699 for the season 1900–1 (see Year Book No. 1), and 15,028 for the year 1919. The subjoined table shews the classification of holdings for which agricultural and pastoral returns were received for 1901 and 1914–1919 :—

WESTERN AUSTRALIA.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES, 1901 AND 1914 TO 1919.

Size of Holdings.	1900–1.	1914.	1915.	1916.	1917.	1918.	1919.
Acres.	Number.	Number.	Number.	Number.	Number.	Number.	Number.
1 to 50 ..	1,728	4,031	3,898	3,813	3,696	3,533	3,670
51 „ 100 ..	198	645	640	620	643	607	635
101 „ 500 ..	2,302	3,349	3,370	3,267	3,064	2,965	2,952
501 „ 1,000 ..	717	3,676	3,687	3,605	3,462	3,310	3,170
1,001 „ 5,000 ..	607	4,025	4,229	4,146	4,080	4,154	4,187
5,001 „ 10,000 ..	73	235	254	268	249	263	285
10,001 „ 20,000 ..	38	93	82	82	103	95	93
20,001 „ 50,000 ..	36(a)	25	27	28	24	27	32
50,001 and over ..	..	7	7	4	3	4	4
Total ..	5,699	16,086	16,194	15,833	15,324	14,958	15,028

(a) Including all holdings of 20,001 acres and upwards.

6. **Tasmania.**—In Tasmania the total number of holdings for which returns were received as on the 1st March, 1909, was 12,413. Particulars for previous years are not available. The following table shews the classification of such holdings in area series for 1913–14 and subsequent years:—

TASMANIA.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES, 1913–14 TO 1919–20.

Size of Holdings.	1913–14.	1914–15.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
Acres.	Number.	Number.	Number.	Number.	Number.	Number.	Number.
1 to 50 ..	4,402	4,416	4,403	4,392	4,606	4,636	4,546
51 „ 100 ..	2,271	2,306	2,299	2,293	2,348	2,363	2,428
101 „ 500 ..	5,088	5,165	5,148	5,134	5,163	5,196	5,237
501 „ 1,000 ..	721	731	729	727	788	793	771
1,001 „ 5,000 ..	667	676	674	672	723	728	731
5,001 „ 10,000 ..	116	168	167	167	125	126	130
10,001 „ 20,000 ..	69	70	69	69	56	57	62
20,001 „ 50,000 ..	34	35	35	35	33	33	31
50,001 and over ..	3	3	3	3	5	5	6
Total ..	13,371	13,570	13,527	13,492	13,847	13,937	13,942

§ 13. The Progress of Land Settlement, 1901 to 1919.

1. **Recent Progress.**—The progress of settlement and the growth of land alienation in the States of the Commonwealth under recent legislation is seen in the subjoined statement, which shews concisely the condition of the public estate in each State and in the Commonwealth, at the end of 1901 and of each year from 1915 to 1919 inclusive. The effect of the land laws during that period has been generally to diminish the number of large holdings, at the same time restricting the area held under lease, while both the area alienated and the area in process of alienation have increased. As leases of large areas fall in or are otherwise terminated they are in many cases not renewed, but the land is then cut up for the purpose of settlement under systems of deferred payment; the State Governments, also, have in many cases acquired by repurchase considerable areas under the provisions of the various Closer Settlement Acts. Further, greater facilities have been granted to the working classes to acquire possession of the soil, and special inducements have been offered to *bona fide* settlers by the introduction of new forms of tenure on easy terms and conditions.

From 1901 to 1919 the area alienated absolutely in the whole Commonwealth increased by 31,945,650 acres, or more than 40 per cent.; the area in process of alienation increased by 20,948,928 acres, or nearly 60 per cent; the area leased by 216,268,246 acres, or nearly 30 per cent; while the area unoccupied decreased by 269,162,824 acres, or 25 per cent.

TOTAL AREA ALIENATED, IN PROCESS OF ALIENATION, HELD UNDER LEASE OR LICENSE AND UNOCCUPIED,

EXPRESSED ABSOLUTELY AND AS PERCENTAGES OF AREA OF ENTIRE STATE FOR THE YEARS 1901 AND 1915 TO 1919.

Year.	Alienated.		In Process of Alienation.		Held under Lease or License.		Occupied by the Crown or Unoccupied.*a*	
	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.
NEW SOUTH WALES.—AREA, 198,036,500 ACRES.*c*								
1901*b*	26,443,554	13.32	21,595,688	10.87	127,055,370	63.96	23,543,468	11.85
1915*c*	40,100,492	20.25	19,064,618	9.63	121,796,091	61.50	17,075,299	8.62
1916*c*	40,363,316	20.38	19,409,656	9.80	118,865,868	60.02	19,397,060	9.80
1917*c*	40,661,225	20.53	19,847,737	10.02	117,239,952	59.20	20,287,586	10.25
1918*c*	40,855,172	20.63	20,470,027	10.34	116,391,054	58.77	20,320,247	10.26
1919*c*	41,366,535	20.89	20,724,214	10.46	115,335,741	58.24	20,610,010	10.41
VICTORIA.—AREA, 56,245,760 ACRES.								
1901	20,066,875	35.67	3,730,351	6.63	17,110,709	30.42	*d*15,337,825	*d*27.28
1915	24,256,222	43.12	8,075,653	14.36	13,035,612	23.18	*d*10,878,273	*d*19.34
1916	24,345,425	43.28	8,278,904	14.72	12,433,959	22.11	*d*11,187,472	*d*19.89
1917	24,427,467	43.43	8,090,052	14.39	12,383,810	22.02	*d*11,338,431	*d*20.16
1918	24,503,531	43.57	8,106,887	14.41	10,649,247	18.93	*d*12,986,095	*d*23.09
1919	24,605,825	43.75	8,811,478	15.66	10,944,854	19.46	*d*11,883,603	*d*21.13
QUEENSLAND.—AREA, 429,120,000 ACRES.								
1901	13,533,468	3.15	2,791,664	0.65	280,023,979	65.26	132,770,889	30.94
1915	16,447,382	3.83	10,776,793	2.51	332,824,904	77.56	69,070,921	16.10
1916	16,570,590	3.86	10,566,829	2.46	326,192,702	76.02	75,789,879	17.66
1917	16,669,837	3.88	10,215,839	2.38	320,970,096	74.80	81,264,228	18.94
1918	16,771,717	3.91	9,763,261	2.27	325,875,0[illegible]	75.94	76,709,970	17.88
1919	16,893,719	3.94	9,064,089	2.11	326,783,036	76.15	76,379,156	17.80
SOUTH AUSTRALIA.—AREA, 243,244,800 ACRES.								
1901	7,535,123	3.10	553,774	0.23	85,591,295	35.18	149,564,608	61.49
1915	10,590,756	4.35	2,943,395	1.21	115,396,433	47.44	114,314,216	47.00
1916	10,674,208	4.39	3,039,292	1.25	114,171,206	46.94	115,360,094	47.42
1917	10,737,841	4.41	3,104,763	1.28	119,437,222	49.10	109,964,974	45.21
1918	10,785,941	4.44	3,025,166	1.24	113,081,068	46.49	116,352,625	47.83
1919	10,857,316	4.46	3,038,084	1.25	114,288,149	46.99	115,060,751	47.30

a Including roads and reserves. *b* To 31st December; subsequent years to 30th June.
c Exclusive of Commonwealth Territory which is included in the figures for 1901.
d Including Mines Department leases and licenses.

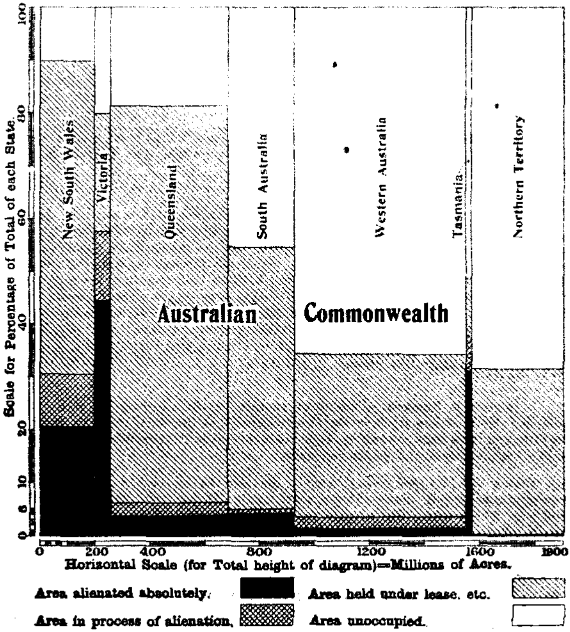
TOTAL AREA ALIENATED, IN PROCESS OF ALIENATION, ETC.—*continued.*

Year.	Alienated.		In Process of Alienation.		Held under Lease or License.		Occupied by the Crown or Unoccupied.*a*	
	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.
WESTERN AUSTRALIA.—AREA, 624,588,800 ACRES.								
1901	3,468,878	0.56	6,116,266	0.98	97,450,660	15.60	517,552,996	82.86
1915*b*	8,007,037	1.28	14,079,386	2.26	189,773,915	30.38	412,727,562	66.08
1916*b*	8,125,629	1.30	13,584,076	2.18	196,772,098	31.50	406,106,997	65.02
1917*b*	8,276,084	1.32	13,284,721	2.13	192,735,253	30.86	410,292,742	65.69
1918*b*	8,462,085	1.35	13,105,628	2.10	208,052,623	33.31	394,968,464	63.24
1919*b*	8,605,479	1.38	13,237,947	2.12	245,449,497	39.30	357,295,877	57.20
TASMANIA.—AREA, 16,777,600 ACRES.								
1901	4,621,585	27.54	272,376	1.62	1,520,983	9.06	10,362,656	61.78
1915	5,125,197	30.55	1,225,924	7.31	1,939,905	11.56	8,486,574	50.58
1916	5,179,865	30.87	1,244,014	7.42	1,954,585	11.65	8,399,136	50.06
1917	5,155,511	30.73	1,184,061	7.06	1,790,022	10.67	8,648,006	51.54
1918	5,197,283	30.98	1,122,797	6.69	1,832,416	10.92	8,625,104	51.41
1919	5,241,292	31.24	1,054,111	6.28	2,003,661	11.94	8,478,536	50.54
NORTHERN TERRITORY.—AREA, 335,116,800 ACRES.								
1901	473,278	0.14	..	..	112,654,288	33.62	221,989,234*c*	66.24
1915	474,590	0.14	..	..	113,926,627	33.99	220,715,583*c*	65.87
1916	475,542	0.14	..	..	110,669,918	33.02	223,971,340*c*	66.84
1917	475,542	0.14	..	..	104,102,423	31.07	230,538,835*c*	68.79
1918	476,476	0.14	..	..	106,331,275	31.73	228,309,049*c*	68.13
1919	476,476	0.14	..	..	122,718,206	36.62	211,922,118*c*	63.24
THE COMMONWEALTH.*d*—AREA, 1,903,731,840 ACRES.								
1901	76,142,761	4.00	35,060,119	1.84	721,407,284	37.89	1,071,121,676	56.27
1915	105,056,196	5.52	56,255,766	2.96	889,007,113	46.69	853,412,765	44.83
1916	105,773,536	5.55	56,203,750	2.95	881,353,026	46.30	860,401,528	45.20
1917	106,444,507	5.59	55,812,496	2.93	868,990,307	45.65	872,484,530	45.83
1918*e*	107,093,317	5.63	55,672,578	2.92	882,365,600	46.35	858,600,345	45.10
1919*f*	108,088,411	5.68	56,009,047	2.94	937,675,530	49.25	801,958,852	42.13

a Including roads and reserves. *b* To 30th June. *c* Including aboriginal reserves and mission stations. *d* Including Federal Territory (601,580 acres). *e* Including Federal Territory: 41,112 acres, or 6.83 %, alienated; 78,812 acres, or 13.10 %, in process of alienation; 152,865 acres, or 25.41 %, held under lease or license; 328,791 acres, or 54.66 %, occupied by the Crown or unoccupied. *f* Including Federal Territory: 41,289 acres, or 7.07 %, alienated; 79,124 acres, or 13.56 %, in process of alienation; 152,386 acres, or 26.11 %., held under lease or license; 310,881 acres, or 53.26 %, occupied by the Crown or unoccupied.

2. Diagram shewing Condition of Public Estate. The following diagram shews the condition of the public estate in the Commonwealth at the end of the year 1917, since which year some slight increases or decreases, which can be seen from the tables (*supra*) have occurred. The square itself represents the total area of the Commonwealth, while the relative areas of individual States are shewn by the vertical rectangles. The areas alienated absolutely, in process of alienation under systems of

deferred payments, and the areas held under leases or licenses, are designated by the differently-shaded areas as described in the reference given below the diagram, while the areas unoccupied are left unshaded :—



3. **Federal Capital Territory.**—The following particulars relate to the tenures of land within the Federal Capital Territory at the end of the year 1920 :—

FEDERAL CAPITAL TERRITORY, TENURES OF LAND, 1920.

	Acres.
Area of acquired lands	204,094
Lands alienated	41,269
In process of alienation (conditional purchases and conditional leases) ..	78,084
Held under lease issued by the State	152,386
Unoccupied lands (roads, reserves, &c.)	107,827
Total Area of Territory	583,660

SECTION VII.

PASTORAL PRODUCTION.

§ 1. Initiation and Growth of Pastoral Industry.

1. **Early Statistics.**—In earlier issues of the Year Book will be found a brief reference to the pastoral industry in Australia prior to the year 1860. (See Year Book No. 6, page 330.)

2. **Subsequent Statistics.**—While the statistical records of live stock in Australia prior to the year 1860 are somewhat defective, from that year onwards fairly complete particulars are available for most of the States. At the present time, statistics of live stock are collected annually in all the States, principally through the agency of the police, but in the years 1885 to 1888 inclusive, and 1893 to 1895 inclusive, these particulars were not collected in South Australia, and similar gaps occur in the Victorian records for the periods 1895 to 1899 inclusive, and 1901 to 1903. In order to obtain totals for the Commonwealth for these years the missing numbers have been supplied by interpolation. The results so obtained probably differ but slightly from the actual numbers for the respective years.

3. **Increase in Numbers.**—Particulars concerning the numbers of each of the principal kinds of live stock in the Commonwealth at decennial intervals from 1860 to 1910, and from 1915 onwards in single years, are given in the following table, and are shewn continuously in the graphs hereinafter.

During the fifty-nine years covered by the table the live stock of the Commonwealth increased considerably, horses 461 per cent., cattle 221 per cent., sheep 275 per cent., and pigs 98 per cent. The average annual increases which these aggregates represent are as follows :—Horses, 2.97 per cent. ; cattle, 2.00 per cent. ; sheep, 2.27 per cent. ; and pigs, 1.27 per cent.

COMMONWEALTH LIVE STOCK, 1860 TO 1919.

Year.	Horses.	Cattle.	Sheep.	Pigs.
1860	431,525	3,957,915	20,135,286	351,096
1870	716,772	4,276,326	41,593,612	543,388
1880	1,061,078	7,523,000	62,176,027	815,776
1890	1,521,588	10,299,913	97,881,221	891,138
1900	1,609,654	8,640,225	70,602,995	950,349
1910	2,165,866	11,744,714	92,047,015	1,025,850
1915	2,377,047	9,931,416	69,257,189	753,693
1916	2,436,148	10,459,237	76,668,604	1,006,763
1917	2,497,903	11,829,138	84,965,012	1,169,365
1918	2,527,149	12,738,852	87,086,236	913,902
1919	2,421,201	12,711,067	75,554,082	695,968

4. **Fluctuations.**—The increases referred to, however, have not been continuous, marked fluctuations having taken place during the period, mainly on account of the droughts which have from time to time left their impress on the pastoral history of Australia. These were in evidence in 1869, 1877, 1884, 1895 and subsequent years, 1902, to some extent in 1908, and in a severer form during the earlier half of 1912, and again during 1914 and 1915. Thus, at the commencement of hostilities, Australia was settling down to a disastrous drought, and the termination of the war likewise marked the beginning of a protracted dry spell which was not broken until the winter of 1920. Though the whole of Australia was visited by drought in this latter instance the visitation was not concurrent in all parts of the Commonwealth, and much country suitable for agistment purposes was available at intervals, which fact probably accounted for the slight losses of cattle recorded during 1919. The number of sheep however decreased by 11,532,154, and the wheat crop was practically a failure.

The extraordinary recuperative power of Australia is reflected in the large increases in the numbers of stock which occurred in the good seasons supervening on the various droughts. Thus, in the nine years from 1902 to 1911, horses increased by 754,426, cattle by 4,766,212, and sheep by 39,335,174, the corresponding increases per cent. per annum being horses 4.57 per cent., cattle 5.90 per cent., and sheep 6.30 per cent.

The years in which the numbers of live stock attained their maxima are as follows:—Horses, 1918, 2,527,149; cattle, 1918, 12,738,852; sheep, 1891, 106,421,068; and pigs, 1917, 1,169,365.

5. **Live Stock in Relation to Population.**—The number of each kind of live stock per head of the population of the Commonwealth has varied during the past fifty-eight years in the manner shewn in the succeeding table:—

NUMBER OF AUSTRALIAN LIVE STOCK PER HEAD OF POPULATION, 1860 TO 1919.

Year.	Horses.	Cattle.	Sheep.	Pigs.	Year.	Horses.	Cattle.	Sheep.	Pigs.
1860 ..	0.38	3.45	17.58	0.31	1914 ..	0.51	2.24	15.91	0.17
1870 ..	0.43	2.60	25.24	0.33	1915 ..	0.48	2.01	14.04	0.15
1880 ..	0.48	3.37	27.87	0.37	1916 ..	0.50	2.14	15.68	0.21
1890 ..	0.48	3.27	31.06	0.28	1917 ..	0.50	2.39	17.13	0.24
1900 ..	0.43	2.29	18.75	0.25	1918 ..	0.50	2.51	17.16	0.18
1910 ..	0.49	2.65	20.80	0.23	1919 ..	0.46	2.41	14.32	0.13

Considered in relation to population, the live stock attained its maximum for the period 1860–1919 in the quinquennium 1890–4, and its minimum in the year 1902. During the period under review, the number of horses varied but slightly in proportion to population, the range for the years shewn above being from 0.38 to 0.51 per head. In the case of cattle, the corresponding limits of variation were 2.01 and 3.45; sheep, 14.04 and 31.06; and pigs, 0.13 and 0.37.

6. ***Live Stock in Relation to Area.***—The numbers of live stock per square mile in the several States and Territories of the Commonwealth are given in the following table:—

NUMBER OF LIVE STOCK PER SQUARE MILE.

States and Territories.	Date.	Horses.	Cattle.	Sheep.	Pigs.
New South Wales	30th June, 1920	2.14	9.94	93.97	0.82
Victoria	1st March, 1920	5.84	18.56	164.11	2.13
Queensland	31st Dec., 1919	1.09	8.86	25.92	0.15
South Australia	30th June, 1920	0.70	0.92	15.82	0.16
Western Australia	31st Dec., 1919	0.18	0.90	6.86	0.06
Tasmania	1st March, 1920	1.50	8.18	67.95	1.36
Northern Territory	31st Dec., 1919	0.07	1.17	0.02	..
Federal Territory	30th June, 1920	1.51	8.91	182.70	0.61
Commonwealth	*1919–20*	*0.81*	*4.27*	*25.40*	*0.23*

7. **Minor Classes of Live Stock.**—The numbers of minor classes of live stock returned for 1919–20 were as follows:—Goats, 218,218; camels, 10,953; mules and donkeys, 13,129; and ostriches, 949. Of these, goats were most numerous in Queensland; camels, mules, and donkeys in Western Australia; and ostriches in South Australia. In the raising of goats, considerable attention has in recent years been devoted to the angora goat and its product (mohair), and about 15,000 angora goats are included in the total of 218,218 goats shewn above. Of these, 4,733 were in New South Wales, 2,400 in Western Australia, and 3,682 in Queensland, while the quantity of mohair produced in the latter State in 1919 was set down at 2,181 lbs., and the number of skins placed on the market was returned as 477.

8. **Net Exports of Principal Pastoral Products.**—The quantities by which the exports of the principal pastoral products of the Commonwealth exceeded the imports for the years 1915–16 to 1919–20 are as follows:—

QUANTITIES OF NET EXPORTS OF PRINCIPAL PASTORAL PRODUCTS OF THE COMMONWEALTH, 1915-16 TO 1919-20.

Products.	Unit of Quantity.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
Animals (living)—						
Cattle	No.	5,417	2,743	1,117	644	3,133
Horses	"	14,589	14,228	23,876	8,686	5,787
Sheep	"	728	3,198	9,080	18,001	21,601
Bones	cwt.	16,378	26,884	20,363	25,669	29,198
Glue Pieces and Sinews	"	23,222	26,973	11,015	3,878	8,156
Glycerine	lb.	(a)	(a)	(a)	1,633,510	—21,745
Hair	"	554,971	514,752	324,523	402,869	600,595
Hoofs	cwt.	8,347	10,497	8,618	10,000	11,382
Horns	"	(a)	(a)	(a)	(a)	(a)
Meats—						
Frozen Beef	lb.	114,654,569	242,040,115	180,222,185	119,938,442	129,939,750
Frozen Mutton and Lamb	"	38,332,651	66,811,263	19,174,231	59,672,405	246,957,427
Frozen Rabbits and Hares	pair	11,367,538	12,674,472	13,164,307	5,132,983	9,622,150
Frozen, Other	lb.	3,004,290	10,773,154	8,256,035	12,329,539	11,397,792
Potted and Extract of	"	(a)	(a)	(a)	(a)	(a)
Preserved in Tins, &c.	"	13,069,238	21,922,630	43,036,310	65,118,256	47,550,045
Other (excluding Bacon and Ham)	"	180,672	35,633	261,391	424,777	755,141
Sausage Casings	"	(a)	(a)	(a)	(a)	(a)
Skins—						
Hides	No.	458,691	98,124	15,873	26,519	540,416
Sheep	"	7,254,642	4,753,464	2,907,431	6,663,978	10,143,952
Rabbit and Hare	cwt.	*51,337*	*48,408*	*71,993*	*117,569*	*127,452*
Other, including Undressed Furs	No.	(a)	(a)	(a)	(a)	(a)
Tallow	cwt.	250,519	555,427	345,849	870,950	712,307
Wool—Greasy	lb.	408,461,233	331,776,079	243,784,851	457,905,701	352,307,700
Scoured	"	74,880,215	51,727,620	62,865,373	106,313,411	84,900,446
Tops	"	4,961,975	4,869,452	4,571,857	2,822,578	6,146,118

NOTE.—The minus sign (—) signifies net imports. (a) Quantity not available.

The values of the net exports for the same five years are furnished in the next table, and amount to no less a total than £243,769,208 for the period, or an average of £48,753,842 per annum, of which wool represents 67 per cent. Meats, skins, and tallow rank next in order of importance.

VALUES OF NET EXPORTS OF PRINCIPAL PASTORAL PRODUCTS OF THE COMMONWEALTH, 1915-16 TO 1919-20.

Products.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
Animals (living)—					
Cattle	10,089	4,582	−10,903	3,567	−23,855
Horses	165,183	306,200	453,616	161,533	117,739
Sheep	−17,507	8,474	15,049	35,007	57,854
Bones	10,009	20,783	21,806	27,156	31,584
Glue Pieces and Sinews	12,815	21,416	15,196	6,904	15,340
Glycerine	15,078	26,459	41,256	58,073	1,351
Hair	26,684	26,802	21,248	29,835	66,943
Hoofs	2,361	6,863	7,848	11,091	14,526
Horns	6,379	4,191	13,309	18,474	52,383
Meats—					
Frozen Beef	2,175,343	4,945,716	3,697,957	2,471,136	2,474,904
Frozen Mutton and Lamb	769,434	1,540,546	452,627	1,298,086	5,482,263
Frozen Rabbits and Hares	724,624	913,142	985,190	308,965	762,936
Frozen, Other	30,248	195,846	199,847	381,780	305,948
Potted and Extract of	31,467	65,471	224,464	328,233	99,599
Preserved in Tins, &c.	438,881	952,369	2,308,989	3,771,373	2,778,503
Other (excluding Bacon and Ham)	3,195	1,151	7,655	15,380	37,845
Sausage Casings	−21,726	1,210	−29,069	101,490	212,427
Skins—					
Hides	266,674	184,262	211,449	156,084	1,089,731
Sheep	1,242,358	1,137,832	808,782	1,921,411	2,585,171
Rabbit and Hare	261,868	433,546	1,155,824	1,314,366	3,670,791
Other, including Undressed Furs	253,458	168,738	276,537	313,472	2,268,748
Tallow	436,225	1,241,219	886,128	2,167,728	2,855,602
Wool—Greasy	20,172,243	21,870,119	16,981,347	31,477,707	38,414,608
Scoured	5,841,064	5,394,259	6,094,040	10,351,553	9,169,288
Tops	680,656	1,204,570	1,510,799	935,212	2,957,679
Total Values	33,558,093	40,695,265	36,350,876	57,665,116	75,499,858

NOTE.—The minus sign (−) signifies net imports.

§ 2. Horses.

1. **Suitability of Australia for Horse-breeding.**—From the earliest times the suitability of the climate and pastures of Australia for the production of serviceable breeds of horses has been fully recognised. By the importation of high-class sires, and the careful selection of breeding mares, these natural advantages are utilised to the fullest extent, all classes of horses being bred. As a consequence of this combination of advantages, the Australian horse, whether of the heavy draught, medium weight, or light saddle and carriage variety, compares more than favourably with the product of other lands. The Australian horse has been found suitable for the army in India, and large numbers are obtained annually for remount purposes. During the last war Australian horses were found to be well adapted for all purposes, especially in Palestine.

2. **Distribution throughout the Commonwealth.**—As regards numbers, the State of New South Wales, the earliest settled of the group, established a lead, which it retained up to the end of 1913. For some years past Queensland has made rapid progress in

this regard, and in 1914 there were 742,159 horses in that State, as compared with 731,735 in New South Wales, and 552,053 in Victoria. New South Wales regained the lead during the next three seasons, but was again replaced by Queensland in 1918. Particulars for the several States for a series of years are as follows :—

NUMBER OF HORSES IN STATES, TERRITORIES, AND COMMONWEALTH, 1860 TO 1919.

Year.	N.S.W.	Vic. (a)	Q'land.	S. Aust.	W. Aust.	Tas. (a)	N.T.	F.T.	C'wealth.
1860 ..	251,497	76,536	23,504	49,399	9,555	21,034	..	..	431,525
1870 ..	337,597	167,220	83,358	83,744	22,174	22,679	..	..	716,772
1880 ..	395,984	275,516	179,152	148,219	34,568	25,267	c2,372	..	1,061,078
1890 ..	444,163	436,459	365,812	187,686	44,384	31,165	11,919	..	1,521,588
1900 ..	481,417	392,237	456,788	166,790	68,253	31,607	12,562	..	1,609,654
1910 ..	650,636	472,080	593,813	249,326	134,114	41,388	24,509	..	2,165,866
1915 ..	b718,232	493,779	685,998	253,333	163,016	41,422	19,957	b1,310	2,377,047
1916 ..	b732,334	514,403	696,508	b257,422	169,730	42,620	21,674	b1,457	2,436,148
1917 ..	b740,806	514,061	731,977	b262,840	178,151	42,396	26,231	b1,441	2,497,903
1918 ..	b721,302	523,788	758,632	b269,255	180,094	41,221	31,436	b1,421	2,527,149
1919 ..	b660,751	513,500	730,326	b264,901	174,919	39,452	35,839	b1,513	2,421,201

(a) 1st March year following. (b) 30th June year following. (c) Statistics not collected prior to 1880.

3. **Proportion in the Several States and Territories.**—The percentages of the number of horses in the several States and Territories on the total for the Commonwealth for the past five years are as follows :—

PERCENTAGE OF HORSES IN EACH STATE AND TERRITORY ON THE TOTAL FOR COMMONWEALTH, 1915 TO 1919.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	F.T.	C'wealth.
	%	%	%	%	%	%	%	%	%
1915 ..	30.20	20.77	28.89	10.65	6.86	1.74	0.84	0.05	100.00
1916 ..	30.05	21.11	28.62	10.56	6.96	1.75	0.89	0.06	100.00
1917 ..	29.64	20.57	29.33	10.52	7.13	1.70	1.05	0.06	100.00
1918 ..	28.53	20.72	30.05	10.65	7.12	1.63	1.24	0.06	100.00
1919 ..	27.29	21.21	30.16	10.94	7.23	1.63	1.48	0.06	100.00

During the period under review the principal increase has occurred in Queensland, while New South Wales shewed the largest decrease. The position of the remaining States has practically remained stationary.

4. **Oversea Export Trade in Horses.**—Australia's export trade in horses is fairly considerable, though somewhat fluctuating. During the past five years it has varied in number between 5,939 for the year 1919–20 and 24,172 in 1917–18, and in value between £166,817 in the former and £502,557 during the latter year. The total number of horses exported during the five years, exclusive of those shipped for military purposes, amounted to 70,665, an average of 14,133 per annum. The total value of the exports for the period

was £1,478,736, or £295,747 per annum. The average export value per head for the period was £20 18s. 6d. The numbers exported to the principal countries concerned in this trade are as follows:—

NUMBER AND DESTINATION OF HORSES EXPORTED FROM THE COMMONWEALTH, 1915–16 TO 1919–20.

Country to which Exported.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for 5 years.
	No.	No.	No.	No.	No.*	No.
India	14,405	15,744	23,890	7,522	4,119	65,680
New Zealand	37	40	26	11	95	209
Java	280	148	..	633	609	1,670
Straits Settlements ..	174	224	21	89	457	965
Fiji	257	223	150	111	223	964
Philippine Islands	8	5	20	215	158	406
Japan	35	16	15	27	40	133
Mauritius	..	..	..	150	60	210
Papua	2	35	30	20	1	88
Other Countries	11	78	20	54	177	340
Total	15,200*a*	16,513*a*	24,172*a*	8,832*a*	5,939*a*	70,665*a*

(*a*) Exclusive of shipments for military purposes.

The corresponding particulars relative to the value of the horses exported are given in the next table :—

VALUE OF HORSES EXPORTED FROM THE COMMONWEALTH, 1915–16 TO 1919–20.

Country to which Exported.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for 5 years.
	£	£	£	£	£	£
India	250,710	312,271	479,520	146,758	84,651	1,273,910
New Zealand	7,232	11,190	16,300	4,600	35,725	75,107
Java	5,352	3,818	..	18,336	14,464	41,970
Straits Settlements ..	3,755	6,427	900	5,915	15,192	32,189
Fiji	6,653	5,814	3,765	2,176	5,548	23,956
Philippine Islands.. ..	1,200	60	200	3,800	3,330	8,590
Japan	1,900	850	750	1,350	1,770	6,620
Mauritius	..	..	..	4,334	1,200	5,534
Papua	65	663	538	817	10	2,0[illegible]3
Other Countries	244	1,804	524	1,268	4,927	8,767
Total	277,111*a*	342,897*a*	502,557*a*	189,354*a*	166,817*a*	1,478,736*a*

(*a*) Exclusive of shipments for military purposes.

* Consequent on the greater demand for remounts for the Indian Army, a large increase took place in the number of horses exported to that country during the four years ended 30th June, 1918. In addition to the exports shewn in the above tables, there were 39,348 horses, valued at £815,300, shipped from the Commonwealth for military purposes from the commencement of the war to 30th June, 1918.

The number of horses imported into the Commonwealth is comparatively small, consisting mainly of valuable animals introduced for breeding purposes, and coming principally from New Zealand and the United Kingdom. The average value per head of the horses imported during the last five years was £170 4s. 3d., as compared with £20 18s. 6d. per head for the exports for the same period. The average number imported per annum was, however, only 300, and the average annual value £50,893. The following table furnishes a comparison of imports and exports of horses during each of the five years 1915–16 to 1919–20 :—

COMMONWEALTH IMPORTS AND EXPORTS OF HORSES, 1915–16 TO 1919–20.

Year.	Imports.		Exports.		Net Exports.	
	No.	Value.	No.	Value.	No.	Value.
		£		£		£
1915–16	620	91,928	15,209	277,111	14,589	185,183
1916–17	285	36,697	16,513	342,897	16,228	306,200
1917–18	296	48,941	24,172	502,557	23,876	453,616
1918–19	146	27,821	8,832	189,354	8,686	161,533
1919–20	152	49,078	5,939	166,817	5,787	117,739

5. **Comparison with other Countries.**—The numbers of horses in some of the leading horse-breeding countries of the world, according to the latest available returns, are as follows :—

NUMBER OF HORSES IN SOME OF THE LEADING HORSE-BREEDING COUNTRIES OF THE WORLD.

Country.	Date.	Number of Horses. (,000 omitted.)	Country.	Date.	Number of Horses. (,000 omitted.)
Russian Empire (a)..	1915–16	33,090	Sweden	1918	715
U.S. of America ..	1919	21,482	Uruguay ..	1916	555
Argentine Republic..	1914	8,324	Colombia ..	1915	526
Brazil	1916	6,065	Denmark ..	1918	511
Austria-Hungary (b)	1910–13	4,380	Spain	1916	489
Canada	1918	3,609	Bulgaria	1910	478
Germany (c) ..	1915	3,342	Paraguay ..	1915	478
Australia	**1919**	**2,421**	Chile	1914	458
France (d).. ..	1917	2,283	Netherlands ..	1919	362
United Kingdom ..	1919	1,915	Finland	1910	361
British India ..	1917	1,681	New Zealand ..	1920	346
Japan	1917	1,560	Belgium	1913	267
Rumania	1916	1,219	Philippine Islands ..	1915	223
Mexico	1902	859	Norway	1918	221
Italy	1918	804	Algeria	1914	203
Cuba	1916	750	Serbia	1910	153
Union of S. Africa ..	1918	781	Switzerland ..	1918	129

(a) Including Caucasus and Siberia. (b) Austria 1910, Hungary 1913, Croatia-Slavonia 1911, Bosnia-Herzegovina 1910. (c) Inclusive of army horses. (d) Exclusive of invaded area.

6. ***Relation to Population.***—*In proportion to population, horses are much more numerous in the Northern Territory than in any other of the principal divisions of the Commonwealth.* Queensland is next in order, while Tasmania has the smallest number of horses per head. *In several of the States, i.e., New South Wales, Victoria, South* Australia and Tasmania, the number of horses per head of population was somewhat lower in 1919 than in 1915. Particulars for the past five years are as follows :—

NUMBER OF HORSES PER HEAD OF POPULATION, 1915 TO 1919.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Terr.	F. Terr.	C'wealth
1915 ..	0.39	0.35	1.01	0.58	0.51	0.21	4.37	0.53	0.48
1916 ..	0.39	0.37	1.04	0.60	0.55	0.21	4.55	0.66	0.50
1917 ..	0.39	0.36	1.08	0.60	0.58	0.21	5.34	0.58	0.50
1918 ..	0.37	0.37	1.09	0.59	0.57	0.20	6.[illegible]8	0.60	0.50
1919 ..	0.33	0.34	1.01	0.56	0.53	0.18	7.62	0.68	0.46

§ 3. Cattle.

1. **Purposes for which Raised.**—In all the States of the Commonwealth, cattle raising is carried out on a more or less extensive scale, the main object in certain districts being the production of stock suitable for slaughtering purposes, and in others the raising of profitable dairy herds. The great impetus which the development of the export trade in Australian butter gave to the dairying industry in the Commonwealth led to a considerable increase in numbers and improvement in quality of the dairy herds of Victoria, New South Wales, and Southern Queensland in particular, the portion of Australia in the temperate zone being the best adapted to this industry. On the other hand, by far the finest specimens of beef-producing cattle are those raised in the tropical districts of the Commonwealth, *i.e.*, in the northern parts of Queensland, in the Northern Territory, and in the Kimberley districts in the north of Western Australia.

2. **Distribution throughout Commonwealth.**—Until 1880 New South Wales occupied the leading position in the Commonwealth group as a cattle-raising State, but in that year Queensland forged ahead and obtained a lead which it has since maintained. The extent of this lead has, however, varied considerably, owing principally to the effects produced by the tick fever and droughts, from both of which causes the Queensland herds suffered more severely than those of the other States. In fact, during the period from 1894, when the number of cattle in Queensland attained its maximum of rather more than 7,000,000, to 1903, when the number recorded was less than 2,500,000, an uninterrupted decline was experienced. During the next sixteen years, however, despite recurring droughts, a rapid improvement took place, and the total reached on 31st December, 1919, was 5,940,433, the highest number recorded since 1897.

Considerable increases have been in evidence in all the States during the three years following the 1914-15 drought, with the result that the Commonwealth total of 12,738,852 for 1918 represents the greatest number of cattle ever depastured in Australia.

Despite the protracted nature of the recent drought the decrease in the number of cattle amounted to only 27,785 in 1919.

The numbers of cattle in the several States and Territories at decennial intervals from 1860 to 1910 and for each of the last five years are as follows :—

NUMBER OF CATTLE IN STATES, TERRITORIES, AND COMMONWEALTH, 1860 TO 1919.

Year.	N.S.W.	Victoria. (a)	Q'land.	S. Aust.	W. Aust.	Tas. (a)	Nor. Ter.	Fed. Ter.	C'wealth.
1860	2,408,586	722,332	432,890	278,265	32,476	83,366	..	..	3,957,915
1870	2,195,096	721,096	1,076,630	136,832	45,213	101,459	..	..	4,276,326
1880	2,580,040	1,286,207	3,162,752	283,315	63,710	127,187	c19,720	..	7,523,000
1890	2,091,229	1,782,978	5,558,264	359,938	130,970	162,440	214,094	..	10,299,913
1900	1,983,116	1,602,384	4,078,191	214,761	338,590	165,516	257,667	..	8,640,225
1910	3,140,307	1,547,569	5,131,699	384,862	825,040	201,854	513,383	..	11,744,714
1915	2,400,104b	1,043,604	4,780,893	226,565	821,048	169,575	483,961	5,666b	9,931,416
1916	2,757,713b	1,175,098	4,765,657	288,887b	863,930	179,360	420,362	8,230b	10,459,237
1917	3,148,309b	1,371,049	5,316,558	313,245b	927,086	197,938	541,545	13,408b	11,829,138
1918	3,271,782b	1,596,544	5,786,744	342,768b	943,847	218,234	570,039	8,894b	12,738,852
1919	3,075,954b	1,631,170	5,940,433	349,562b	880,644	214,442	610,534	8,378b	12,711,067

(a) 1st March year following. (b) 30th June year following. (c) Statistics not collected prior to 1880.

3. **Proportion in each State.**—Particulars concerning the relative importance of the various cattle-breeding States during the years 1915 to 1919 are as under :—

PERCENTAGE OF CATTLE IN EACH STATE AND TERRITORY ON TOTAL FOR COMMONWEALTH, 1915 TO 1919.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	%	%	%	%	%	%	%	%	%
1915 ..	24.17	10.51	48.14	2.28	8.27	1.71	4.87	0.05	100.00
1916 ..	26.37	11.24	45.56	2.76	8.26	1.71	4.02	0.08	100.00
1917 ..	26.62	11.59	44.94	2.65	7.84	1.67	4.58	0.11	100.00
1918 ..	25.68	12.53	45.43	2.69	7.41	1.71	4.48	0.07	100.00
1919 ..	24.20	12.83	46.73	2.75	6.93	1.69	4.80	0.07	100.00

During the past five years the percentages of cattle in the various States on the Commonwealth total have suffered little change. Victoria has shown the largest gain, while the principal decreases occurred in Queensland and Western Australia.

4. Imports and Exports of Cattle.—Although the various products of the cattle-raising industry bulk largely in the export trade of the Commonwealth, the export of live cattle from Australia has never been considerable. The number of cattle imported is also small, consisting, as in the case of horses, mainly of valuable animals for breeding. Details are as follows :—

COMMONWEALTH IMPORTS AND EXPORTS OF CATTLE, 1915-16 TO 1919-20.

Year.	Imports.		Exports.		Net Exports.	
	No.	Value.	No.	Value.	No.	Value.
		£		£		£
1915-16 ..	440	19,169	5,857	29,258	5,417	10,089
1916-17 ..	234	14,254	2,977	18,836	2,743	4,582
1917-18 ..	222	23,570	1,339	12,577	1,117	– 10,993
1918-19 ..	66	3,373	710	6,940	644	3,567
1919-20 ..	337	55,656	3,470	31,801	3,133	– 23,855

NOTE.—The minus sign (–) signifies net imports.

The average value of the cattle imported into the Commonwealth during the last five years was £89 6s. 4d. per head, while the average value of the cattle exported during the same period was £6 18s. 6d. As stated previously, the imported cattle were principally for stud purposes.

5. Cattle Slaughtered.—The numbers of cattle slaughtered in the several States and Territories of the Commonwealth during the years 1915 to 1919 are as follows :—

CATTLE (INCLUDING CALVES) SLAUGHTERED IN STATES, TERRITORIES, AND COMMONWEALTH, 1915 TO 1919.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
1915	b384,947	356,174	653,015	82,070	65,138	28,586	a4,000	b 55	1,573,985
1916	b393,400	247,781	578,202	b63,167	59,072	26,972	a4,000	b122	1,372,716
1917	b377,936	217,480	582,954	b69,789	50,781	23,521	22,911	b 87	1,345,459
1918	b437,046	223,340	498,737	b73,148	48,707	22,419	31,511	b141	1,335,049
1919	b593,859	362,475	461,197	b85,978	55,056	15,753	23,286	b138	1,597,742

(a) Estimated. (b) For year ended 30th June of year following.

6. **Export of Beef Preserved by Cold Process.**—A large export trade in beef preserved by cold process is carried on by the Commonwealth in normal times, mainly with the United Kingdom, Egypt, and the Philippine Islands. The quantities so exported during the five years 1915–16 to 1919–20 are as follows :—

QUANTITY OF BEEF PRESERVED BY COLD PROCESS EXPORTED FROM THE COMMONWEALTH, 1915–16 TO 1919–20.

Country to which Exported.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for 5 years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom ..	108,906,118	239,384,893	145,300,631	47,056,554	105,725,679	646,373,875
Egypt	109,969	..	30,359,072	68,681,034	6,616,637	105,766,712
Philippine Islands ..	4,089,865	548,398	1,368,713	1,994,336	2,928,722	10,930,034
Straits Settlements ..	1,411,876	1,691,256	1,535,005	1,480,201	2,366,035	8,484,373
Hawaiian Islands ..	..	200,398	502,067	489,640	2,104,769	3,296,872
Ceylon	1,330	83,752	203,823	60,854	405,347	755,106
Hong Kong	38,859	90,000	98,058	75,791	467,974	770,682
Bismarck Archipelago ..	105,857	67,272	97,155	88,900	94,976	454,160
United States ..	..	..	..	40,086	301,673	341,759
Other Countries ..	12,230	15,719	784,777	22,121	67,099	901,946
Total ..	114,676,104	242,081,686	180,249,301	119,989,517	121,078,911	778,075,519

The value of the beef preserved by cold process exported from the Commonwealth during the same years is as follows :—

VALUE OF BEEF PRESERVED BY COLD PROCESS EXPORTED FROM THE COMMONWEALTH, 1915–16 TO 1919–20.

Country to which Exported.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for 5 years.
	£	£	£	£	£	£
United Kingdom ..	2,055,045	4,890,927	2,976,301	958,164	2,130,527	13,010,964
Egypt	2,520	..	616,627	1,415,713	133,583	2,168,443
Philippine Islands ..	86,011	11,139	31,449	44,225	65,331	238,155
Straits Settlements ..	28,040	34,397	31,819	33,284	53,363	180,903
Hawaiian Islands ..	..	4,356	17,968	14,058	62,818	99,202
Ceylon	25	2,352	4,582	2,130	11,539	20,628
Hong Kong	764	1,850	2,032	1,704	10,426	16,776
Bismarck Archipelago ..	3,026	1,448	1,451	1,752	2,401	10,078
United States ..	..	..	..	1,023	7,422	8,445
Other Countries ..	463	599	16,464	733	1,838	20,097
Total ..	2,175,894	4,947,070	3,698,693	2,472,786	2,479,248	15,773,691

During the five years under review, the largest of Australia's customers for beef preserved by cold process has been the United Kingdom, while the second largest customer has been Egypt ; the Philippine Islands, the Straits Settlements, and the Hawaiian Islands ranked next in order of importance. The exporting States and Territories during 1919–20 were :—Queensland, 101,065,300 lbs., valued at £2,031,934 ; Northern Territory, 10,360,502 lbs., valued at £227,815 ; New South Wales, 6,211,564 lbs., valued at £147,554 ; Victoria, 2,252,509 lbs., valued at £44,532 ; Western Australia, 661,965 lbs., valued at £16,431 ; and South Australia, 527,071 lbs., valued at £10,982.

7. **Comparison with other Countries.**—In the following comparison of the herds of Australia with those of some of the principal cattle-raising countries of the world, the latest available figures have been inserted in each case :—

NUMBER OF CATTLE IN VARIOUS COUNTRIES.

Country.	Date.	No. of Cattle. (,000 omitted.)	Country.	Date.	No. of Cattle. (,000 omitted.)
British India (*a*)	1918	129,872	Colombia	1915	3,035
U.S. of America	1919	68,560	Rumania (*c*) ..	1916	2,938
Russian Empire (*b*) ..	1915–16	53,145	Sweden	1918	2,594
Brazil (*c*)	1916	28,962	Turkish Empire ..	1913	2,398
Argentine Republic ..	1914	25,867	Siam	1915	2,337
Austria-Hungary (*d*) ..	1910–13	17,648	Denmark	1918	2,142
Germany	1919	16,424	Chile	1917	2,030
France (*e*)	1918	13,315	Venezuela	1912	2,004
Australia	**1919**	**12,711**	Netherlands ..	1919	1,969
United Kingdom ..	1919	12,491	Belgium	1913	1,849
Canada	1918	10,051	Finland	1910	1,604
Uruguay	1916	7,802	Bulgaria	1910	1,603
Union of South Africa	1918	6,852	Switzerland ..	1918	1,530
Madagascar	1917	6,676	Ceylon (*c*)	1918	1,451
Italy	1918	6,240	Korea	1915	1,354
Paraguay	1915	5,249	Japan	1917	1,304
Mexico	1902	5,142	Rhodesia	1918	1,211
Cuba	1916	3,962	Algeria	1914	1,093
Java	1915	3,243	Norway	1918	1,054
New Zealand ..	1920	3,102	British East Africa ..	1916	1,000
Spain	1916	3,071			

(*a*) Including buffalo calves. (*b*) Including Caucasus and Siberia. (*c*) Including buffaloes. (*d*) Austria 1910, Hungary 1913, Croatia-Slavonia 1911, and Bosnia-Herzegovina 1911. (*e*) Exclusive of invaded area.

8. **Relation to Population.**—The number of cattle per head of population differs considerably in the several States, and is also subject to marked variation from year to year in the same State. Particulars for the past five years are as follows :—

NUMBER OF CATTLE PER HEAD OF POPULATION, 1915 TO 1919.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Terr.	F. Terr.	C'wealth.
1915 ..	1.29	0.74	7.04	0.52	2.58	0.84	106.06	2.30	2.01
1916 ..	1.47	0.84	7.12	0.67	2.80	0.90	88.18	3.70	2.14
1917 ..	1.65	0.97	7.84	0.71	3.09	0.97	110.34	5.42	2.39
1918 ..	1.67	1.12	8.33	0.75	3.01	1.04	119.23	3.77	2.51
1919 ..	1.52	1.09	8.19	0.74	2.66	0.99	129.74	3.77	2.41

For the Commonwealth as a whole the ratio of cattle to population has increased substantially since 1915 and the increase has been in evidence in all the States.

§ 4. Sheep.

1. **The Founding of the Commonwealth Pastoral Industry.**—Fortunately for Australia, the suitability of its climate and general conditions for the production of a high class of wool was, at an early date in the history of its settlement, surmised and tested by Captain Macarthur, one of the pioneer sheep-breeders of New South Wales.

To the energy of this enterprising pastoralist is due in large measure the rapid and extremely satisfactory development of Australia as a producer of fine wool, and though it would appear that the introduction of the Merino sheep into Australia was not due to Macarthur, a great deal of the credit for having successfully established the pastoral industry in Australia must certainly be his.

2. Distribution throughout Commonwealth.—With the exception of a short period in the early sixties, when the flocks of Victoria outnumbered those of the mother State, New South Wales has maintained amongst the Commonwealth group the lead in sheep production which naturally attached to it as the portion of the Commonwealth in which settlement was first effected. From 1878 to 1901, the number of sheep in New South Wales represented more than half the total for the Commonwealth, but in recent years the proportion has fallen away considerably.

The number of sheep in the several States and Territories at decennial intervals from 1860 to 1910, and for each year from 1915 to 1919, is as follows :—

NUMBER OF SHEEP IN STATES, TERRITORIES, AND COMMONWEALTH, 1860 TO 1919.

Year.	New South Wales.	Victoria. (a)	Queensland.	South Australia.	Western Australia.	Tasmania. (a)	Nor. Terr.	Fed. Terr.	Total C'wealth.
1860	6,119,163	5,780,806	3,449,350	2,824,811	260,136	1,700,930	..	..	20,135,286
1870	16,308,585	10,761,887	8,163,818	4,400,655	608,892	1,349,775	..	..	41,593,612
1880	35,398,121	10,360,285	6,935,967	6,443,904	1,231,717	1,796,715	c9,318	..	62,176,027
1890	55,986,431	12,692,843	18,007,234	7,004,642	2,524,913	1,619,256	45,902	..	97,881,221
1900	40,020,506	10,841,790	10,339,185	5,235,220	2,434,311	1,683,956	48,027	..	70,602,995
1910	45,560,969	12,882,665	20,331,838	6,267,477	5,158,516	1,788,310	57,240	..	92,047,015
1915	b32,498,046	10,545,632	15,950,154	3,674,547	4,803,850	1,624,460	57,827	b102,683	69,257,189
1916	b36,086,241	12,576,587	15,524,293	b5,091,282	5,529,960	1,702,579	47,520	b110,142	76,668,604
1917	b38,482,465	14,760,013	17,204,268	b6,229,519	6,384,191	1,711,116	54,709	b138,731	84,965,012
1918	b37,243,770	15,773,002	18,220,985	b6,625,184	7,183,747	1,841,924	58,620	b138,104	87,086,236
1919	b29,077,514	14,422,745	17,379,332	b6,014,565	6,697,951	1,781,425	8,811	b171,739	75,554,082

(a) 1st March year following. (b) 30th June of year following. (c) Statistics not collected prior to 1860.

During the year 1919 the Avon Downs Pastoral Company in the Northern Territory disposed of the whole of their flock numbering about 50,000, and this property is now stocked with cattle only.

3. Proportion in the Several States and Territories.—Particulars concerning the relative positions of the several States and Territories with respect to the total flocks of Australia during the years 1915 to 1919 are as hereunder :—

PERCENTAGE OF SHEEP IN EACH STATE AND TERRITORY ON TOTAL FOR COMMONWEALTH, 1915 TO 1919.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Terr.	F. Terr.	C'wealth.
	%	%	%	%	%	%	%	%	%
1915 ..	46.92	15.23	23.03	5.30	6.94	2.35	0.08	0.15	100.00
1916 ..	47.07	16.41	20.25	6.64	7.21	2.22	0.06	0.14	100.00
1917 ..	45.29	17.37	20.25	7.33	7.52	2.01	0.07	0.16	100.00
1918 ..	42.77	18.11	20.92	7.61	8.25	2.11	0.07	0.16	100.00
1919 ..	38.49	19.09	23.00	7.96	8.86	2.36	0.01	0.23	100.00

During the period, the percentage on the total Commonwealth flocks declined considerably in the case of New South Wales, while in the cases of Victoria, Western Australia, and South Australia substantial advances were experienced.

4. Oversea Imports and Exports of Sheep.—As in the case of cattle, the oversea exports of live sheep from Australia are of comparatively small importance. During the past five years the principal consignments of ordinary sheep have been made to the Straits Settlements from the State of Western Australia. The purchases made by South African and Japanese buyers at the Australian Stud Sheep Sales during recent years have opened up a regular export trade with these two countries in stud sheep, the bulk of which have been secured from the leading flocks of New South Wales, Victoria and South Australia. The following are particulars of the imports and exports for the years 1915–16 to 1919–20 :—

COMMONWEALTH IMPORTS AND EXPORTS OF SHEEP, 1915-16 TO 1919-20.

Year.	Imports.		Exports.		Net Exports.	
	No.	Value.	No.	Value.	No.	Value.
		£		£		£
1915–16 ..	6,597	36,511	7,325	19,004	728	—17,507
1916–17 ..	3,809	24.470	7,007	32,944	3,198	8,474
1917–18 ..	1,719	9,850	10,799	24,899	9,080	15,049
1918–19 ..	607	4, 76	18,608	39,783	18,001	35,007
1919–20 ..	269	6,258	21 870	64,112	21,601	57,854

NOTE.—The minus sign (—) signifies net imports.

5. Sheep Slaughtered.—The numbers of sheep slaughtered in the several States during each of the years from 1915 to 1919 are as follows :—

SHEEP (INCLUDING LAMBS) SLAUGHTERED, 1915 TO 1919.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania. (a)	Nor. Ter.	Fed. Ter.	C'wealth.
1915	b4,173,511	2,973,803	1,916,152	918,526	564,535	288,419	c500	b3,376	10,238,822
1916	b3,756,477	2,647,200	909,615	b686,112	547,041	283,313	c500	b2,975	8,833,233
1917	b3,198,465	2,499,002	689,905	b808,914	590,244	259,287	c500	b3,713	8,050,030
1918	b4,271,396	3,581,460	542,479	b1,137,578	630,117	295,844	c500	b3,334	10,462,708
1919	b5,533,484	6,324,490	717,191	b1,478,557	800,252	332,977	(d)	b3,800	15,190,751

(a) Partly estimated. (b) Year ended 30th June year following. (c) Estimated. (d) Not available.

6. Exports of Mutton and Lamb Preserved by Cold Process.—Australia's export trade in mutton and lamb preserved by cold process has, in recent years, advanced rapidly. In 1903 the value of exports was £492,114, while eleven years afterwards in 1914–15, the value amounted to no less a sum than £3,413,848. During the next four years, consequent on drought and war conditions, the value of the exports fell considerably, averaging for the period only £1,015,351 per annum. With the release of shipping and the high prices ruling in England the trade rapidly recovered, and during 1919-20 the record shipment of 246,971,346 lbs., valued at £5,482,564, was made. In all the States considerable attention is now being paid to the breeding of a class of sheep that will best meet the requirements of consumers. Crosses between the Merino and the Lincoln, or between the Merino and the Leicester breeds, have proved exceedingly valuable, as they furnish both a good quality of wool and an excellent carcase for export purposes. The breeding of Shropshire and Southdown sheep with a view to combining meat production

with that of wool is also on the increase. Special attention is being paid to the raising of lambs, as it has become widely recognised that with suitable breeds the export trade in lambs is very profitable.

As in the case of frozen beef, Australia's principal customer in this trade is the United Kingdom, which has absorbed 93 per cent. of the total quantity exported from the Commonwealth during the past five years, while the balance was shipped mainly to Egypt and the Straits Settlements.

QUANTITY OF MUTTON AND LAMB PRESERVED BY COLD PROCESS EXPORTED FROM THE COMMONWEALTH, 1915-16 TO 1919-20.

Country to which Exported.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.	Total for 5 years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom ..	36,539,660	65,140,182	9,532,577	49,784,705	239,154,276	400,151,400
Egypt	319,156	..	8,071,709	8,464,515	..	16,855,380
Straits Settlements ..	749,863	964,335	824,406	754,080	1,102,058	4,395,371
Sweden	..	..	..	..	2,119,602	2,119,602
Ceylon	302,839	284,130	252,716	189,875	383,518	1,413,078
Union of South Africa ..	..	..	..	..	1,578,839	1,578,839
Hong Kong	194,209	272,450	144,789	195,881	576,315	1,183,644
Philippine Islands ..	132,134	35,608	122,963	194,843	505,312	1,080,860
Canada	..	..	199,092	..	273,047	472,139
United States	..	..	..	..	143,304	148,304
Other Countries ..	105,747	116,104	27,058	103,547	1,239,475	1,591,931
Total	38,343,628	66,812,809	19,175,310	59,687,455	246,971,346	430,990,548

The corresponding particulars concerning the values of the exports are :—

VALUES OF FROZEN MUTTON AND LAMB EXPORTED FROM THE COMMONWEALTH, 1915-16 TO 1919-20.

Country to which Exported.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.	Total for 5 years.
	£	£	£	£	£	£
United Kingdom ..	725,255	1,496,658	213,710	1,082,646	5,292,542	8,810,811
Egypt	7,719	..	194,199	176,551	..	378,469
Straits Settlements ..	18,713	25,534	23,885	20,796	30,599	119,527
Sweden	..	..	..	..	49,303	40,303
Ceylon	7,524	7,250	7,103	5,058	10,401	37,336
Union of South Africa	..	..	..	..	34,788	34,788
Hong Kong	4,928	7,210	4,072	5,399	10,201	31,810
Philippine Islands ..	3,039	965	3,425	5,395	14,709	27,533
Canada	..	..	5,471	..	8,675	14,146
United States ..	..	..	..	..	3,603	3,603
Other Countries ..	2,574	2,955	782	2,586	27,743	36,640
Total ..	769,752	1,540,572	452,647	1,298,431	5,482,564	9,543,966

7. **Comparison with other Countries.**—As regards the size of its flocks, and the quantity and quality of wool produced, Australia has long occupied a leading position amongst the sheep-raising countries of the world. From estimates published in the Year Book of the United States Department of Agriculture it would appear that the

approximate number of sheep in the world is in the neighbourhood of 550,000,000, to which total Australia contributes nearly 14 per cent. The following comparison taken mainly from the same source gives the latest available figures relative to the number of sheep in the principal wool-producing countries :—

NUMBER OF SHEEP IN VARIOUS COUNTRIES.

Country.	Date.	No. of Sheep. (,000 omitted.)	Country.	Date.	No. of Sheep. (,000 omitted.)
Australia	**1919**	**75,554**	Brazil	1916	7,205
Russian Empire (a) ..	1914	72,273	British East Africa ..	1916	6,565
U. S. of America ..	1919	47,114	German East Africa ..	1913	6,440
Argentine Republic ..	1915	43,077	Germany	1919	5,824
Union of South Africa	1918	29,914	Greece	1917	5,548
Ottoman Empire ..	1912	27,095	Morocco	1916–18	4,857
United Kingdom ..	1919	25,119	Chile	1917	4,183
New Zealand ..	1920	23,915	Serbia	1910	3,819
British India ..	1918	22,895	Mexico	1902	3,424
Spain	1917	17,227	Portugal	1906	3,073
Austria-Hungary (b) ..	1910 / 1913	12,337	Canada	1918	3,053
Italy	1918	11,752	Upper Senegal and Niger	1918	2,161
Uruguay	1916	11,473	Sweden	1918	1,409
France (c)	1918	9,496	Basutoland ..	1911	1,369
Algeria	1914	9,140	Finland	1910	1,309
Bulgaria	1910	8,632	Norway	1918	1,185
Rumania	1916	7,811	Tunis	1916	1,148

(a) Including Poland, Caucasus, and Siberia. (b) Austria, Croatia-Slavonia and Bosnia-Herzegovina 1910; Hungary 1913. (c) Exclusive of invaded area.

8. **Relation to Population.**—The relation of the flocks of the several States and Territories to the population at the end of each year from 1915 to 1919 is as follows :—

NUMBER OF SHEEP PER HEAD OF POPULATION, 1915 TO 1919.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	F.T.	C'wealth.
1915 ..	17.42	7.43	23.50	8.38	15.11	8.08	12.67	41.64	14.04
1916 ..	19.24	8.99	23.19	11.77	17.91	8.52	9.97	49.55	15.66
1917 ..	20.14	10.46	25.38	14.18	20.63	8.42	11.15	56.10	17.13
1918 ..	18.97	11.02	26.24	14.53	22.92	8.82	12.26	58.59	17.16
1919 ..	14.33	9.64	23.96	12.73	20.20	8.22	1.87	77.29	14.32

A comparison of the ratios of sheep to population for 1919 with those for 1915 discloses increases in all the States excepting New South Wales and the Northern Territory, where the proportions have diminished considerably.

§ 5. Wool.

1. ***Importance of Wool Production.***—*The chief contributing factor to the pastoral wealth of Australia is the production of wool, the value of the output for the season ended 30th June, 1920, being about £42,835,000. The bulk of the wool produced in the Commonwealth is exported, but with the greater activity of the local woollen mills there has, in recent years, been an increasing quantity used in Australia, although even now the quantity so used represents only about 3 per cent. of the whole clip.*

2. Greasy and Scoured Wool.—*For the purpose of comparing the clips of the several States or of the Commonwealth as a whole for a series of years, it is convenient to have the total production expressed in terms of greasy wool.*

The quantity of Australian wool scoured and washed before export during recent years has been on the average about 20 per cent. of the total clip. The loss of weight in scouring varies largely with season, locality, breed, and condition. It seems preferable to express "scoured and washed" wool in terms of "greasy" rather than vice versa, since the absolute error arising from uncertainty as to average loss of weight has thus the less effect.

In the following tables relative to the production of wool, "scoured and washed" wool has been converted into the estimated equivalent amount of "greasy" wool, on the assumption that two pounds of "greasy" wool are on the average required to produce one pound of "scoured and washed" wool.

3. Total Production.—The estimated production of wool in the several States, formerly based on the Customs returns, being no longer available from that source, an effort has been made to arrive at approximate figures from data collected by the State Statisticians from growers, fellmongers, &c. Particulars for years prior to 1915–16 will be found in earlier issues (see Year Book No. 6, page 346, and No. 9, page 296). The following table gives the estimates obtained in reference to the five seasons ended 30th June, 1916 to 1920:—

ESTIMATED QUANTITY OF WOOL AS IN THE GREASE, SHORN, FELLMONGERED OR ON SKINS SHIPPED DURING THE SEASONS ENDED 30th JUNE, 1916 TO 1920.

State.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales (*a*)	262,045,000	270,525,000	284,188,000	305,613,000	296,641,000
Victoria	82,330,198	94,845,024	105,424,682	126,647,061	132,847,167
Queensland ..	130,783,277	102,220,125	87,425,558	113,777,272	118,035,461
South Australia ..	33,969,975	35,050,865	46,339,339	55,947,108	58,306,918
Western Australia ..	31,887,888	34,199,682	39,701,357	45,317,271	46,299,381
Tasmania	9,212,203	10,441,978	10,284,316	10,279,998	11,069,237
Northern Territory (*b*)	350,000	350,000	330,000	330,000	50,000
Commonwealth ..	550,578,541	547,632,674	573,693,252	657,911,710	663,249,164

(*a*) Including Federal Territory. (*b*) Approximate figures.

It is to be noted that a shortage has apparently occurred in the collection of these statistics, the estimates falling considerably below the approximate totals obtained from oversea shipments of wool and skins, together with the quantity used in local manufactories. For the three seasons ended 30th June, 1914, this average annual shortage amounted to nearly 46,000,000 lbs. of wool. The abnormal conditions of wool shipment obtaining during the last five seasons do not admit of any similar comparisons being made. The appraisement figures of the Central Wool Committee, however, furnish further evidence of shortage in the figures supplied by the State Statisticians for the past three seasons. During these years the total appraisements amounted to 2,094,261,297 lbs., thus revealing an average annual deficit of 66,469,057 lbs. in the estimated production for those seasons based on the State Statisticians' returns.

The weight and value of wool per sheep shorn in the past five seasons is shown in the following table :—

ESTIMATED WEIGHT AND VALUE OF WOOL PER SHEEP SHORN FOR THE SEASONS ENDED 30th JUNE, 1916 TO 1920.

Season ended 30th June.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
				WEIGHT.			
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1916	7.09	5.79	6.37	7.65	6.16	5.29	6.63
1917	7.39	6.26	7.00	7.47	5.82	5.79	6.96
1918	7.08	6.19	6.91	7.52	6.17	5.38	6.80
1919	7.13	6.21	6.30	7.41	6.09	5.09	6.68
1920	7.03	6.38	6.59	7.89	5.71	5.32	6.73
				VALUE.			
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1916	6 8	6 9	6 1	6 10	5 5	7 2	6 6
1917	9 8	8 8	9 2	9 0	6 11	9 3	9 2
1918	8 9	8 6	9 7	9 1	7 11	8 5	8 9
1919	8 11	8 3	8 10	9 0	7 4	7 9	8 7
1920	8 10	8 4	9 3	9 3	7 1	8 3	8 9

4. **Wool Locally Used.**—The quantity of wool used in the manufactories of the several States of the Commonwealth during the past five years was approximately as follows :—

LOCALLY USED WOOL (Estimated as "Greasy"), 1916 TO 1919-20.

State.	1916.	1917.	1918.	1918–19.	1919–20.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales	*b*6,467,806	*b*6,556,988	*b*6,118,000	6,769,284	7,054,962
Victoria	*a*11,052,250	*b*8,669,460	*b*7,344,035	7,823,050	11,300,400
Queensland	358,504	304,091	268,917	268,917	634,376
South Australia	*a*1,065,130	*b*995,164	*b*734,723	654,758	693,297
Western Australia	..	..	..	..	..
Tasmania	1,244,844	1,172,000	1,301,006	1,301,006	997,542
Commonwealth	20,188,528	17,697,703	15,766,681	16,817,015	20,680,577

(*a*) Previous year's figures. (*b*) Year ended 30th June.

5. **Bounties on Combed Wool or Tops Exported.**—Under the Bounties Act 1907, *bounties were payable on combed wool or tops exported from the Commonwealth, provided* they were produced therein. The maximum amount to be paid might not exceed a total of £10,000 per annum; any unexpended sum might be carried forward and be available for the years following. For the three years commencing 1st January, 1909, the rate of bounty granted was 1½d. per lb., and for the two years commencing 1st January, 1912, 1d. per lb. was payable for all combed wool or tops produced; thenceforward to the end of 1915, 1d. per lb. was payable up to 1,000,000 lbs., to any one manufacturer during a year, and ½d. *per lb. in excess of that quantity. No bounties have been paid on combed* wool or tops since 1915. During the year 1908–9, an amount of £326 was paid in bounties, in 1909–10, £4,933; in 1910–11, £8,522; in 1911–12, £16,898; in 1912–13, £13,061; in 1913–14, £12,706; in 1914–15, £7,727; and in 1915–16, £5,828. The quantities of wool on which these amounts were paid were 52,085, 789,216, 1,363,555, 3,122,244, 2,134,614, 3,068,170, 3,635,811 and 2,624,436 lbs. respectively.

Figures shewing the exports of wool tops for the years 1915–16 to 1919–20 inclusive will be found on the next page.

6. **Exports of Wool.**—During the two calendar years prior to the war, about 38 per cent. of the exports of wool from the Commonwealth was despatched to the United Kingdom, whereas the shipments for the same destination during the past five years have averaged 69 per cent. The other leading consignees for the last five years were the United States of America, Italy, Japan, France, and, prior to the war, Germany and Belgium. The following table shews for the years 1915–16 to 1919–20 the quantities of "greasy" wool exported from the Commonwealth and the principal countries to which consigned :—

COMMONWEALTH EXPORTS OF WOOL IN THE GREASE, 1915–16 TO 1919–20.

Country to which Exported.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for 5 years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom ..	202,384,381	283,440,361	139,113,437	352,282,663	397,688,435	1,374,915,277
United States of America	115,112,628	16,174	57,425,217	71,776,334	28,326,008	272,656,361
Italy	43,167,206	25,608,163	17,641,985	10,036,918	44,597,155	141,051,427
Japan	34,725,863	16,830,727	2,910,477	5,319,577	8,928,971	68,733,615
France	13,746,706	12,254,213	5,675,577	3,719,125	32,243,017	67,638,638
Belgium	..	..	..	..	39,189,760	39,189,760
Egypt	..	..	15,522,281	10,950,893	..	26,473,174
Canada	453,950	727,923	4,726,317	3,152,424	..	9,060,614
India	198,228	297,218	778,286	795,792	..	2,069,524
New Zealand	11,059	..	..	..	..	11,059
Other Countries ..	1,452,965	32,471	..	..	1,360,782	2,846,218
Total	411,252,986	339,222,250	243,802,577	458,033,726	552,334,128	2,004,645,667

Similar particulars concerning the exports of "scoured and washed" wool are as follows :—

COMMONWEALTH EXPORTS OF "SCOURED AND WASHED" WOOL (a), 1915–16 TO 1919–20.

Country to which Exported.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for 5 years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom ..	37,569,727	46,917,307	59,247,374	103,261,254	70,454,411	317,450,073
United States of America	27,983,634	154,172	1,446,501	1,460,294	2,600,657	33,595,258
Japan	7,490,571	5,081,183	4,779,061	3,447,825	3,676,467	24,484,127
Belgium	..	..	..	..	13,931,527	13,931,527
Italy	4,920,545	2,651,922	475,914	..	..	8,048,381
France	1,190,404	1,016,397	62,148	27,239	105,177	2,401,455
Egypt	..	..	1,074,558	35,780	..	1,110,338
India	240,603	209,060	51,684	216,326	..	607,713
New Zealand	104,864	..	..	..	..	104,864
Other Countries ..	426,553	567,059	299,490	687,271	282,537	2,262,910
Total	79,886,051	56,687,100	67,436,730	109,135,989	91,050,776	404,196,646

(a) Including "tops."

The figures for "scoured and washed wool" include tops, amounting in 1915–16 to 4,981,975 lbs., valued at £680,656; in 1916–17, 4,869,452 lbs., valued at £1,204,570; in 1917–18, 4,571,357 lbs., valued at £1,510,799; in 1918–19, 2,822,578 lbs., valued at £935,212; and in 1919–20, 6,148,118 lbs., valued at £2,957,679. The total exports of

wool tops during the last five years amounted to 23,393,490 lbs., valued at £7,288,916, of which 20,069,394 lbs., or nearly 86 per cent., were shipped to Japan.

The total value of the wool exported from the Commonwealth to the principal countries during the five years under review was :—

TOTAL VALUE OF WOOL EXPORTED FROM THE COMMONWEALTH, 1915-16 TO 1919-20.

Country to which Exported.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.*	Total for 5 years.
	£	£	£	£	£	£
United Kingdom ..	12,608,971	23,431,942	15,648,640	34,563,566	37,256,915	123,510,054
United States of America	6,381,302	13,513	4,389,755	4,982,056	2,516,142	20,282,768
Japan	2,587,091	2,470,414	1,796,089	1,400,192	2,010,732	10,264,518
Italy	2,115,801	1,845,861	1,005,058	548,142	2,832,951	8,347,903
France	952,026	963,097	372,453	304,410	2,352,749	4,944,735
Belgium	..	..	..	..	3,356,349	3,356,349
Egypt	..	..	939,149	613,814	..	1,552,963
Canada	53,316	77,267	338,087	238,924	63,520	771,114
India	32,442	87,860	66,780	78,336	..	265,418
New Zealand	4,931	..	..	..	..	4,931
Other Countries ..	118,121	63,384	30,833	37,315	154,445	404,098
Total	26,854,091	28,953,338	24,586,864	42,766,755	50,543,803	173,704,851

7. *Care Needed in Comparing Clips.*—The Customs returns prior to 1914-15 do not furnish a reliable indication of increase or decrease in successive clips, since in each case they relate to the year ended 31st December, and include imports and exports of wool belonging to two distinct clips. A further defect in the comparability of successive clips is due to the circumstance that owing to climatic or other conditions, the time of shearing may be so far delayed that one clip may include almost thirteen months' growth of wool, while the succeeding one may include little more than eleven months' growth.

8. **Wool-producing Countries in Southern Hemisphere.**—The next table, compiled by one of the leading English wool-broking firms, furnishes interesting evidence of the relative importance of the three great wool-producing areas of the Southern Hemisphere. The figures given are the latest available, and represent for the respective years the imports of wool into Europe and North America :—

IMPORTS OF WOOL INTO EUROPE AND NORTH AMERICA, *1912 TO 1916.*

Year.	Australia and New Zealand.	Cape Colony.	River Plate.	Total.	Average Value of Australasian and Cape Bales.
	Bales.	Bales.	Bales.	Bales.	£
1912	2,463,000	463,000	497,000	3,423,000	15.0
1913	2,296,000	484,000	437,000	3,217,000	16.5
1914	2,332,000	499,000	406,000	3,237,000	17.0
1915	2,157,000	519,000	378,000	3,054,000	19.0
1916	1,919,000	500,000	344,000	2,763,000	27.0

As the River Plate bale is much larger than the Australasian or Cape bale, a comparison of the number of bales is somewhat misleading. Allowing approximately for the difference in size of the several bales, it may be said that during the five years shewn above the importations from Australia and New Zealand represented about 65 per cent. of the total.

9. *United Kingdom Importation of Wool.*—The quantity and value of wool imported into the United Kingdom during the year 1919 from the principal wool-producing countries furnish evidence of the important position which the Commonwealth occupies in the supply of wool to the mother country. This is shewn in the following table :—

IMPORTS OF WOOL INTO THE UNITED KINGDOM, 1919.

Country from which imported.	Quantity.	Value.	Country from which imported.	Quantity.	Value.
	lbs.	£		lbs.	£
Australia ..	**587,557,420**	**57,522,055**	Uruguay ..	1,012,702	116,582
New Zealand ..	254,196,274	21,898,528	Portugal ..	1,169,940	87,581
Union of S. Africa	80,552,564	7,525,501	China ..	1,156,961	86,732
British India ..	63,005,908	4,285,043	Russia ..	1,324,820	86,007
Argentine Republic ..	22,123,433	2,348,606	U.S. of America	695,095	63,319
Chile	8,590,723	837,487	British Possessions, n.e.i.	638,559	57,069
Egypt	5,036,375	492,376	Foreign Countries, n.e.i.	2,277,699	230,861
Turkey ..	6,177,296	443,330			
Peru	2,519,785	333,031			
Falkland Islands	2,943,332	289,112			
Canada ..	1,920,278	185,610	Total ..	1,042,899,164	96,888,830

It will be seen that of the total importations of wool into the United Kingdom, Australian wool represented 56 per cent. of quantity and 59 per cent. of value, and New Zealand 24 per cent. of quantity and 22½ per cent. of value. It is interesting to note that a total of 995,850,710 lbs., valued at £92,255,294 was received from British Possessions, being 95·5 per cent. of the total weight imported, and 95·2 per cent. of the total value.

10. The Wool Market.—(i) *General.* A résumé of Australian wool market conditions for the seasons 1907–8 to 1912–13 will be found in Year Book No. 7 (pages 296 and 297), for the season 1913–14 in Year Book No. 8 (page 297), and for the seasons 1914–15 and 1915–16 in Year Book No. 10 (page 310).

(ii) *Purchase by British Government.* The purchase by the Imperial Government of the balance of the Australian wool clip, for the season 1916–17, was brought about as a result of war conditions. Owing to the demand for wool for British and Allied military clothing, it was decided to acquire the Australian clip at the flat rate of 15½d. per pound greasy—an increase of 55 per cent. on the prices ruling in the season immediately preceding the war, viz., 1913–14. The control of the scheme was placed in the hands of a body called the Central Wool Committee, assisted by a committee in each State. These committees consisted of representatives of the wool growers, wool sellers, wool buyers, manufacturers, and scourers or fellmongers. In addition the Central Wool Committee had a Government nominee, who acted as chairman. The broad policy laid down was that existing trade conditions were not to be disturbed; this meant that

the carrying out of the details of the scheme was left to the trade itself. The wool was prepared, catalogued and shewn in the usual way, but instead of being sold by public auction, it was valued by duly appointed Government Wool Appraisers, according to a table of limits prepared by a body of experts acting as an Advisory Board to the Central Wool Committee. On appraisement, the wool became the property of the Imperial Government, and was shipped as freight space became available, the allotment of freight being on the basis of the quantity of wool appraised in each State.

The Central Wool Committee, at the request of the Imperial Government, undertook to scour and re-class as much wool as would keep the local industries going to their full capacity.

(iii) *Financial.* Funds received from the Imperial Government were used to effect a payment of 90 per cent. of the appraised price to wool brokers for distribution to the growers within fourteen days from the final date of each series of appraisements. The balance of 10 per cent. was withheld for possible adjustments. The money so retained was placed at interest, the earnings being added to the amount available for final distribution. The average appraised price per pound having worked out less than the purchase price of 15½d., the money retained, amounting to £2,313,461, was paid over on the 14th August, 1917. A dividend—the first—of 10 per cent. was paid on 23rd October, 1917, amounting to £2,312,608. This represents slightly more than the payment in full of the flat rate of 15½d. per pound. A small dividend will follow as soon as final adjustments can be made.

(iv) *Quantity and Value of Wool Appraised, 1916–17.* The quantity of wool appraised under the Imperial Government's purchase of a portion of the clip for the season 1916–17 amounted to 323,752,519 lbs. greasy, and 34,307,991 lbs. scoured, equivalent to 392,368,501 lbs. of wool in the grease. The average appraised price per pound of wool in the grease was 14.72d., the average for scoured wool was 22.86d. per pound, and the average of all wool—greasy, and scoured calculated as greasy—appraised under the scheme was 14.15d. per pound, the difference between this average and the 15½d. basis being equal to 9.5 per cent. on the average appraised price.

(v) *Purchase of 1917–18 Clip.* The organisation for the carrying out of the Imperial Government's purchase of the Australian wool clip 1917–18 was the same as for the balance of the season 1916–17.

With the exception of a few modifications necessary for the better working of the scheme, no alteration was made in the method of appraisement.

Ninety per cent. of the appraised value was paid to wool growers through the wool selling brokers fourteen days after the completion of each series of appraisements, 10 per cent. again being withheld for possible adjustments.

The total quantity of greasy wool appraised was 569,629,520 lbs., and scoured wool 47,340,403 lbs., a total of 616,969,923 lbs., equal to 664,310,326 lbs. greasy.

The average appraised price of the greasy wool was 14.98d. per lb., and of the scoured wool 25.62d. per lb. The average appraised price on the greasy basis works out at 14.68d. per lb. The difference between this and the flat rate of 15½d. is equal to 5.59 per cent. of the appraised price.

The 10 per cent. retention money, together with a dividend of 5 per cent., was distributed in all centres on the 21st August, 1918, involving a sum of approximately £6,094,713. A small further dividend will be payable when outstanding accounts are finally adjusted.

PARTICULARS OF PURCHASE OF 1917-18 AUSTRALIAN WOOL CLIP.

Purchased by—		Quantity of Wool Appraised.				Values. Appraised Value.			Values. Based on Flat Rate Value.		
		Bales.	Fadges.	Sacks.	Weight in lbs.	£	s.	d.	£	s.	d.
British Government ..	Greasy	1,627,360	18,136	190,587	553,713,279	34,619,564	19	9	36,555,476	4	11
	Scoured	197,246	697	745	46,196,661	4,956,855	0	7	5,234,040	4	10
	Total	1,824,606	18,833	191,332	599,909,940	39,576,420	0	4	41,789,516	9	9
Woollen Manufacturers ..	Greasy	37,187	493	15,682	13,185,745	715,302	10	3	755,301	18	6
	Scoured	4,632	16	23	1,132,587	95,444	17	0	100,782	1	8
	Total	41,819	509	15,705	14,318,332	810,747	7	3	856,084	0	2
Wool Top Manufacturers ..	Greasy	7,936	1	..	2,730,496	242,287	10	4	255,836	2	9
	Scoured	46	..	..	11,155	1,835	18	7	1,938	11	9
	Total	7,982	1	..	2,741,651	244,123	8	11	257,774	14	6
Total Purchased	Greasy	1,672,483	18,630	206,269	569,629,520	35,577,155	0	4	37,566,614	6	2
	Scoured	201,924	713	768	47,340,403	5,054,135	16	2	5,336,760	19	3
	Total	1,874,407	19,343	207,037	616,969,923	40,631,290	16	6	42,903,375	4	5
Grand total in terms of Greasy	..	..	..	..	664,310,326	..			42,903,375	4	5

NOTE.—Woollen manufacturers obtained their supplies at the appraised price, but wool top manufacturers were required to pay the flat rate value for all their purchases.

(vi) *Purchase of 1918–19 Clip.* The purchase of the 1918–19 clip and appraisement thereof were virtually carried out on the same lines as for the clip of 1917–18.

The total wool appraised during the 1918–19 season consisted of 599,447,103 lbs. greasy and 52,662,569 lbs. scoured wool, or an equivalent of 704,772,241 lbs. in terms of greasy.

The total greasy wool appraised represented a value of £38,310,763, the average price being 15.34d. per lb., while the scoured value was £5,670,405, or an average per lb. of 25.84d.

Reducing all appraised wool to a greasy basis the average price would be 14.98d. per lb.

The difference between the appraised price and the flat rate of 15½d. was 3.49 per cent. of the appraisement.

A dividend of 3¼ per cent., together with the 10 per cent. retained, or a total of 13¼ per cent., was accordingly made payable on the 28th August, 1919.

PARTICULARS OF PURCHASE OF 1918–19 AUSTRALIAN WOOL CLIP.

Purchased by—	—	Quantity of Wool Appraised.				Values.	
		Bales.	Fadges.	Sacks.	Weight in lbs.	Appraised Value. £	Based on Flat Rate Value. £
British Government	Greasy	1,700,290	22,878	235,423	579,168,627	36,975,793	..
	Scoured	217,092	872	668	51,121,844	5,504,575	..
	Total	1,917,382	23,750	236,091	630,290,471	42,480,368	43,963,348
Woollen Manufacturers	Greasy	37,507	300	10,862	13,189,300	..	..
	Scoured	4,542	10	1	1,108,427	..	..
	Total	42,049	310	10,863	14,297,727	839,756	869,072
Wool Top Manufacturers	Greasy	21,257	4	..	7,089,176	..	..
	Scoured	1,896	..	..	432,298	..	..
	Total	23,153	4	..	7,521,474	661,044	684,120
Total Purchased ..	Greasy	1,759,054	23,182	246,285	599,447,103	38,310,763	38,714,292
	Scoured	223,530	882	669	52,662,569	5,670,405	6,802,248
	Total	1,982,584	24,064	246,954	652,109,672	43,981,168	45,516,540
Grand total in terms of Greasy ..	..	..	..	..	704,772,241	..	45,516,540

NOTE.—Woollen manufacturers again purchased at appraised price, while the wool tops companies paid the flat rate, and have contracted to pay, in addition, a percentage increase equal to that of the final dividend on the whole clip, when determined.

(vii) *Purchase of 1919–20 Clip.* Arrangements having been concluded for the purchase by the Imperial Government of the Australian wool clip for the currency of the war and for one full wool year thereafter, the agreement embraced the 1919–20 season's production, the conditions being on the same lines as for previous seasons.

The total wool appraised during the 1919–20 season consisted of 586,576,318 lbs. greasy and 69,315,732 lbs. scoured wool, or an equivalent of 725,207,782 lbs. in terms of greasy.

The total greasy wool appraised represented a value of £38,231,129, the average price being 15.64d. per lb., while the scoured value was £7,769,373, or an average per lb. of 26.90d. Reducing all appraised wool to a greasy basis the average price would be 15.22d. per lb.

The difference between the appraised price and the flat rate of 15½d. was 1.817 per cent. of the appraisement. The Central Wool Committee decided to increase the percentage adjustment from 1.817 to 2.0 per cent.

A payment of £906,423, representing an adjustment between appraised price and flat rate, also the retention money, £4,532,118, making a total of £5,438,541, equal to 12 per cent. of appraised value, was distributed in all centres on the 22nd September, 1920."

PARTICULARS OF PURCHASE OF 1919–20 AUSTRALIAN WOOL CLIP.

Purchased by—	—	Quantity of Wool Appraised.				Values.	
		Bales.	Fadges.	Sacks.	Weight in lbs.	Appraised Value. £	Based on Flat Rate Value. £
British Government	Greasy	1,034,759	23,658	237,652	555,165,045	35,841,624	36,492,842
	Scoured	292,444	1,205	784	68,155,430	7,655,482	7,794,577
	Total	1,027,20[illegible]	24,863	238,436	623,320,475	43,497,106	44,287,419
Woollen Manufacturers	Greasy	61,968	423	13,760	20,999,310	1,376,294	1,401,300
	Scoured	4,351	5	6	1,047,875	95,086	96,813
	Total	66,319	428	13,766	22,047,185	1,471,380	1,498,113
Wool Top Manufacturers	Greasy	32,806	11	..	10,411,963	1,013,211	1,081,620
	Scoured	548	..	..	112,427	18,805	10,147
	Total	33,354	11	..	10,524,390	1,032,016	1,050,767
Total Purchased ..	Greasy	1,720,533	24,092	251,412	586,576,318	38,231,129	38,925,762
	Scoured	297,343	1,210	790	69,315,732	7,769,373	7,910,537
	Total	2,026,876	25,302	262,202	655,892,050	46,000,502	46,836,299
Grand total in terms of greasy ..	..	..	..	..	725,207,782	..	46,836,299

NOTE.—Woollen manufacturers purchased at appraised price sufficient wool to maintain their normal output to 30th June, 1920. After that date they had the option of purchase at prices determined by the Central Wool Committee on parity with London auction prices. The wool tops companies again paid the flat rate, and have contracted to pay in addition a percentage increase equal to that of the final dividend on the whole clip when determined.

Fifty per cent. of the profits resulting from the resale of wool by the Imperial Government and credited to Australian woolgrowers up to 31st March, 1919, amounted to £6,486,992. The amount of profits, distinct and additional to the 50 per cent. of profits from the resale of wool by the Imperial Government, earned by the Central Wool Committee since the inception of the scheme, is estimated at £1,667,469.

The Central Wool Committee distributed an interim dividend on the 27th October, 1920, comprising the full amount of profits earned by the Imperial Government up to 31st March, 1919, and an additional sum of £1,166,300 from the Central Wool Committee's administration profits, making a total of £7,653,292, which is equal to 5 per cent. on all wool appraised during the past four seasons.

As very high prices for wool ruled for practically the whole of the year ending 31st March, 1920, further substantial profits may reasonably be expected. It must not, however, be overlooked that a considerable portion of the 2,000,000 bales of carry-over Australian wools is not at present readily saleable, and it is more than probable that the lower grade crossbred wools will not return Australian appraised prices plus charges, consequently debits from this source may seriously reduce the profits earned on the fine grade wools.

The quantity of appraised wool in the Commonwealth awaiting shipment overseas on the 30th June, 1920, was 7,520 bales of the 1917–18 season, 164,377 bales of the 1918–19 season, and 989,926 bales of the 1919–20 season, or a total of 1,161,823 bales, representing a value of approximately £25,075,000.

(viii) *Wool Realization Scheme.* The 30th June, 1920, marked the termination of the contract with the Imperial Government for the purchase of the Australian wool clips at a flat rate of 15½d. per lb. greasy, and the return to the Australian woolgrowers of 50 per cent. of the profits realized from the resale of surplus wool. This meant that the wool trade was free to return, as far as was possible under existing conditions, to the methods of disposal followed prior to the commencement of the contract. Owing, however, to the unsettled state of the world's markets, and the unsatisfactory exchange rates ruling on the Continent and elsewhere, the sales both in England and in Australia have been disappointing, withdrawals being very heavy, and prices, except in a few instances, far from satisfactory.

Towards the end of 1920, steps were taken to bring about some arrangement whereby the enormous stocks of carry-over wool held by the British Imperial Government, both in England and in Australia, could be handled in such a way that the disposal of the 1920–1 clip would not be seriously menaced. After various proposals had received consideration, it was decided to form a company to be known as the "British Australian Wool Realisation Association, Limited." This company, of which the Australian woolgrowers are the shareholders, will deal with the disposal of surplus stocks of Australian and New Zealand wools from the Imperial Government Purchase Scheme.

In order that there will be no clashing of interests, action has been taken to put into effect a scheme whereby the offerings of wool by the Association and by wool selling brokers in Australia and in London will be apportioned according to stocks held, and to the market demands.

(ix) *Average Export Value.* The average values per lb. of Australian greasy wool according to the export returns for the past five years have been as follows :—

EXPORT VALUE PER LB. OF AUSTRALIAN GREASY WOOL, 1915–16 TO 1919–20.

Year	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	d.	*d.*	*d.*	*d.*	*d.*
Average value per lb.	11.86	15.81	16.71	16.49	16.69

(x) *Exports of Wool from each State, and Quantity sold Locally.* Over 86½ per cent. of the wool grown in Australia was sold in the local markets prior to export from the Commonwealth during 1913–14. Under normal conditions prior to the war buyers from the United Kingdom, France, Germany, and other European countries, also from America, Japan, China, and India, attended the sales conducted in Sydney, Melbourne, Geelong, Brisbane, Adelaide, Fremantle, Hobart, and Launceston.

The following table shews the number of bales of wool exported overseas from each State during the season ended 30th June, 1920, and bales appraised or sold for shipment, for use in local woollen mills, for scouring, etc. It must be noted that as considerable quantities of wool grown in some States are sold in or shipped

from others, these figures do not shew actual local production, but total overseas shipments and sales. The estimated quantity of wool produced in each State is given on page 228.

EXPORTS OF WOOL TO PLACES OUTSIDE THE COMMONWEALTH, AND THE QUANTITY APPRAISED OR SOLD IN THE SEVERAL STATES, DURING THE SEASON ENDED 30th JUNE, 1920.

State	Overseas Exports.		Sales or Appraisements.	
	Bales.	%	Bales.	%
New South Wales	733,920	36.02	744,170	36.37
Victoria	516,320	25.34	607,717	29.70
Queensland	352,840	17.31	319,922	15.64
South Australia	215,934	10.60	213,754	10.45
Western Australia	174,347	8.55	122,341	5.98
Tasmania	44,384	2.18	38,008	1.86
Commonwealth	2,037,745	100.00	2,045,912	100.00

(xi) *Exports of Wool from Commonwealth and Quantity sold Locally.* The number of bales of wool exported from the Commonwealth and the number sold at local sales prior to shipment, or taken for local use, during 1895, 1900, 1905, 1910, and the succeeding four seasons is shewn in the following table:—

EXPORTS OF WOOL FROM THE COMMONWEALTH, AND THE QUANTITY SOLD LOCALLY FROM 1895 TO 1914.

Year ended 30th June.	Overseas Exports.	Local Sales.(a)	Ratio of Wool sold locally to Exports.
	Bales.	Bales.	%
1895	1,595,652	817,333	51.22
1900	1,221,163	807,031	66.09
1905	1,218,969	926,940	76.04
1910	1,921,705	1,624,561	84.54
1911	1,975,378	1,642,555	83.15
1912	2,020,547	1,700,494	84.16
1913	1,718,486	1,518,650	88.37
1914	1,966,576	1,703,744	86.64

(a) Including wool absorbed by local woollen mills and wool-scouring establishments.

The steady development of the Australian wool market is clearly shewn in this table. In the nineteen years ended 1914, the quantity sold locally more than doubled, and the ratio of wool sold locally to that exported increased from 51 per cent. in 1895 to over 86½ per cent. in the season ended 30th June, 1914. The abnormal conditions obtaining since the outbreak of war have materially affected the ratios, which in consequence are no longer serviceable as a measure of growth of the local market.

(xii) *Quantities of Various Descriptions of Wool Sold or Appraised in each State.* The quantities and ratios of the various descriptions of wool marketed in each State are shewn in the following table :—

PROPORTIONS OF THE VARIOUS DESCRIPTIONS OF WOOL SOLD OR APPRAISED LOCALLY IN THE SEVERAL STATES OF THE COMMONWEALTH DURING THE SEASON ENDED 30th JUNE, 1920.

Description of Wool.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Commonwealth.
	Bales.	Bales.	Bales.	Bales.	Bales.	Bales.	Bales.
Greasy	628,917	523,665	245,793	205,903	116,004	37,932	1,758,214
Scoured ..	115,253	84,052	74,129	7,851	6,337	76	287,698
Total ..	744,170	607,717	319,922	213,754	122,341	38,008	2,045,912
Fleece, etc. ..	721,622	563,203	309,685	196,817	112,749	36,661	1,940,737
Lambs'	22,548	44,514	10,237	16,937	9,592	1,347	105,175
Total ..	744,170	607,717	319,922	213,754	122,341	38,008	2,045,912
Merino	516,975	214,241	309,365	191,797	108,689	11,422	1,352,489
Crossbred and all strong breeds ..	227,195	393,476	10,557	21,957	13,652	26,586	693,423
Total ..	744,170	607,717	319,922	213,754	122,341	38,008	2,045,912
	%	%	%	%	%	%	%
Greasy	84.51	86.17	76.83	96.33	94.82	99.80	85.94
Scoured ..	15.49	13.83	23.17	3.67	5.18	0.20	14.06
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fleece, etc. ..	96.97	92.68	96.80	92.08	92.16	96.46	94.86
Lambs'	3.03	7.32	3.20	7.92	7.84	3.54	5.14
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Merino	69.47	35.25	96.70	89.73	88.84	30.05	66.11
Crossbred and all strong breeds ..	30.53	64.75	3.30	10.27	11.16	69.95	33.89
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Wool in the grease represented nearly 86 per cent. of the total marketed during 1919–20. Of fleece and lambs' wool, the former represents 94.86, and the latter 5.14 per cent. The class of wool produced is largely merino, which is almost exclusively grown in the northern, western, and central parts of the continent, the bulk of the merino wool dealt with in Victoria coming from Riverina and other parts of New South Wales. The development of the frozen mutton and lamb export trade and the resultant raising of a type of sheep suitable for both mutton and wool have led to a

considerable increase in the production of crossbred wool throughout Australia during recent years. The proportion of such wool sold in Australia to the total sales amounted to 16.6 per cent. in 1912, whereas, eight years later, in 1919–20, the proportion had increased to 33.9 per cent. The whole of the crossbred and other strong bred wools are grown in Victoria and Tasmania and in the southern parts of New South Wales, South Australia and Western Australia.

(xiii) *Percentages in each State of Various Descriptions of Wool Sold or Appraised.* The following table gives the percentages of each description of wool sold or appraised in the several States during the season 1919–20 :—

PERCENTAGE OF BALES OF EACH DESCRIPTION OF WOOL SOLD OR APPRAISED IN THE SEVERAL STATES ON THE TOTAL SOLD OR APPRAISED IN THE COMMONWEALTH, 1919-20.

Description of Wool.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Commonwealth.
	%	%	%	%	%	%	%
Greasy ..	35.77	29.78	13.98	11.71	6.60	2.16	100.00
Scoured ..	40.06	29.22	25.76	2.73	2.20	0.03	100.00
Fleece, etc. ..	37.18	29.02	15.96	10.14	5.81	1.89	100.00
Lambs' ..	21.44	42.33	9.73	16.10	9.12	1.28	100.00
Merino ..	38.22	15.84	22.87	14.18	8.04	0.85	100.00
Crossbred and all strong breeds ..	32.78	56.75	1.52	3.17	1.97	3.83	100.00

§ 6. Hides and Sheepskins.

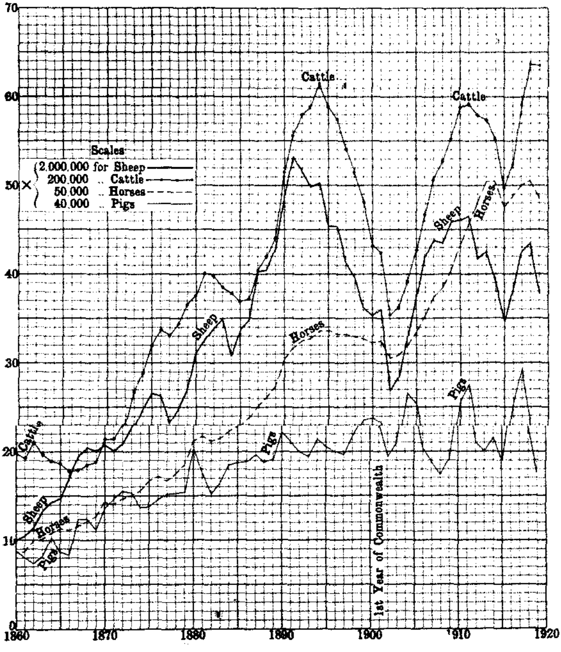
1. **Extent of Trade.**—In addition to the hides and sheepskins treated in the tanneries of the several States, a very considerable export trade is carried on, the total value of cattle hides and sheepskins exported from Australia during the five years 1915–16 to 1919–20 being no less than £11,077,948, or an average of £2,215,590 per annum.

2. **Sheepskins with Wool.**—By far the largest item included in the amount mentioned in the preceding paragraph arises from the value of sheepskins with wool exported, which are shipped principally to the United Kingdom and France. Details concerning the number so exported during the five years 1915–16 to 1919–20 are as follows :—

COMMONWEALTH EXPORTS OF SHEEPSKINS WITH WOOL, 1915–16 TO 1919–20.

Country to which Exported.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for 5 Years.
	No.	No.	No.	No.	No.	No.
United Kingdom	3,506,365	2,152,016	2,172,176	6,005,229	5,866,862	19,702,648
France ..	1,863,904	753,530	..	..	..	2,617,434
U.S. of America	331,706	..	..	..	179,260	510,966
Canada ..	61,103	46,668	..	..	..	107,771
New Zealand ..	25,283	..	..	..	..	25,283
Italy	9,949	..	..	..	..	9,949
Other Countries	24	..	..	62	..	86
Total ..	5,798,334	2,952,214	2,172,176	6,005,291	6,046,122	22,974,137

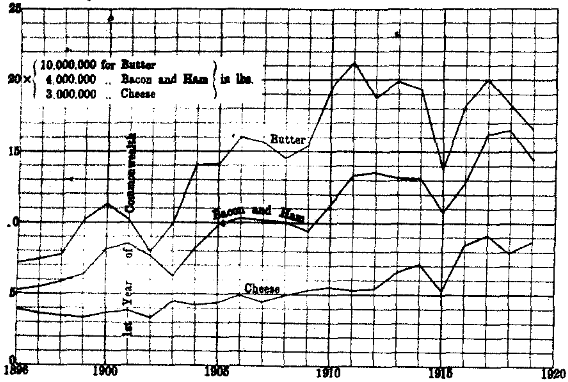
GRAPHS SHEWING NUMBER OF HORSES, CATTLE, SHEEP, AND PIGS IN THE COMMONWEALTH FROM 1860 TO 1919.



(See page 212.)

EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year. The totals of the horses, cattle, sheep, and pigs for the Commonwealth are indicated by the several curves or graphs, the vertical side of a small square representing 2,000,000 in the case of sheep; 200,000 for cattle; 50,000 for horses: 40,000 for pigs.

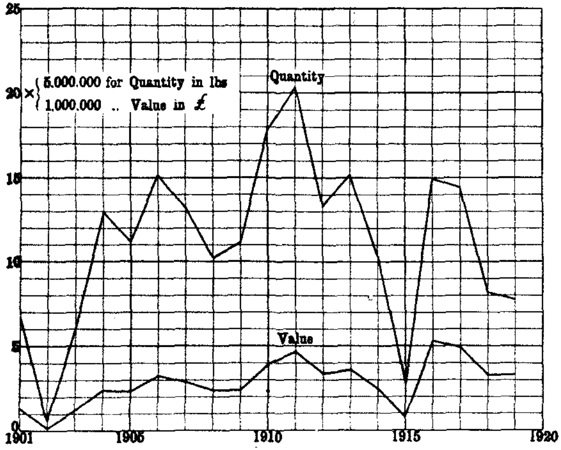
GRAPHS SHEWING THE PRODUCTION OF BUTTER AND CHEESE, AND BACON AND HAM IN THE COMMONWEALTH, FROM 1896 TO 1919.



(See pages 308 and 309.)

EXPLANATION OF GRAPHS.—The base of each small rectangle represents an interval of one year, and the vertical height of each small rectangle denotes in the case of butter 10,000,000 lbs.; in the case of bacon and ham, 4,000,000 lbs.; and in the case of cheese 3,000,000 lbs.

GRAPHS SHEWING THE QUANTITY AND VALUE OF NET EXPORTS OF BUTTER FROM THE COMMONWEALTH, FROM 1901 TO 1919.



(See page 307.)

EXPLANATION OF GRAPHS.—The base of each small rectangle represents an interval of one year, and the vertical height of each small rectangle represents 5,000,000 lbs. in weight, or £1,000,000 in value.

The next table furnishes corresponding particulars as to value :—

VALUE OF SHEEPSKINS WITH WOOL EXPORTED FROM THE COMMONWEALTH, 1915–16 TO 1919–20.

Country to which Exported.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for 5 years.
	£	£	£	£	£	£
United Kingdom	779,615	738,483	732,030	1,845,036	1,940,088	6,035,252
France ..	283,293	250,783	..	..	..	534,076
U.S. of America	97,890	..	..	..	27,266	125,156
Canada ..	12,553	10,869	..	..	..	23,422
New Zealand ..	6,268	..	..	..	..	6,268
Italy	875	..	..	..	..	875
Other Countries	5	..	..	21	..	26
Total ..	1,180,499	1,000,135	732,030	1,845,057	1,967,354	6,725,075

3. Sheepskins without Wool.—In the case of sheepskins without wool the principal countries to which export takes place are the United States of America and the United Kingdom. Particulars concerning the quantities exported are as follows :—

COMMONWEALTH EXPORTS OF SHEEPSKINS WITHOUT WOOL, 1915–16 TO 1919–20.

Country to which Exported.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for 5 years.
	No.	No.	No.	No.	No.	No.
U.S. of America	1,815,725	1,618,517	749,570	181,461	3,066,531	7,431,804
United Kingdom	103,497	155,189	66,996	444,943	729,903	1,500,528
Canada ..	540	184,460	74,710	162,477	306,592	728,779
Belgium ..	..	..	..	..	40,872	40,872
Japan ..	1,047	2,949	7,368	216	10,932	22,512
France ..	..	1,098	..	..	18,060	19,158
New Zealand ..	..	24	..	4,968	3,024	8,016
Other Countries	..	..	..	..	1,170	1,170
Total ..	1,920,809	1,962,237	898,644	794,065	4,177,084	9,752,839

Corresponding details concerning value are given hereunder :—

VALUE OF SHEEPSKINS WITHOUT WOOL EXPORTED FROM THE COMMONWEALTH, 1915–16 TO 1919–20.

Country to which Exported.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for 5 years.
	£	£	£	£	£	£
U.S. of America	86,908	126,612	74,693	21,802	473,257	783,272
United Kingdom	5,243	12,019	9,656	54,669	115,524	197,111
Canada ..	39	13,750	10,335	19,282	35,764	79,170
Belgium ..	..	..	..	..	4,055	4,055
Japan ..	83	337	685	24	1,486	2,615
France ..	..	89	..	..	787	876
New Zealand ..	..	2	..	279	367	648
Other Countries	..	..	..	..	205	205
Total ..	92,273	152,809	95,369	96,056	631 445	1,067,952

4. Hides.—The Commonwealth trade in cattle hides has now assumed considerable proportions, and during 1914–15 the total value of such hides exported amounted to £1,303,201. The exports were principally to the United Kingdom and the United States of America. The disastrous drought of 1914–15, coupled with the increased demand for leather, more especially for military purposes, resulted in a considerable falling-off in the quantity of hides available for export during the war period. The 1919–20 figures, however, shew that much of the former trade has been regained, whilst the enhanced prices make the total value of the exportation equal to any pre-war shipment. Large quantities of hides are imported into the Commonwealth, mainly from New Zealand and the Pacific Islands.

Particulars concerning the export of cattle hides during the past five years are as follows:—

COMMONWEALTH EXPORTS OF CATTLE HIDES, 1915-16 TO 1919-20.

Country to which Exported.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for 5 years.
	No.	No.	No.	No.	No.	No.
United Kingdom ..	209,210	147,408	136,425	245,517	171,082	910,551
U.S. of America ..	..	2,783	4,943	2,734	336,092	346,552
Italy	97,038	2,334	..	..	21,185	120,557
Canada	66,890	19,210	3,338	1,302	2,525	93,265
Belgium	..	..	..	..	26,189	26,189
Japan	4,006	..	3,300	5,883	6,399	19,588
New Zealand ..	14,582	11,526	1,218	3,950	10	31,286
France	1,129	3,733	..	..	1,500	6,362
Denmark	..	..	..	..	2,370	2,370
Union of South Africa	2,705	..	..	..	..	2,705
Hong Kong ..	..	..	..	..	1,208	1,208
Other Countries ..	..	..	..	..	5	5
Total ..	395,569	186,994	149,224	259,386	569,465	1,560,638

In the next table are given particulars relative to the value of cattle hides exported:—

VALUE OF CATTLE HIDES EXPORTED FROM THE COMMONWEALTH, 1915-16 TO 1919-20.

Country to which Exported.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for 5 years.
	£	£	£	£	£	£
United Kingdom ..	264,517	270,718	335,562	538,012	396,767	1,805,576
U.S. of America ..	..	5,217	10,638	2,078	931,660	949,593
Italy	113,924	3,772	..	..	56,072	173,768
Canada	97,950	33,243	5,812	2,823	7,013	146,841
Belgium	..	..	..	..	77,739	77,739
Japan	8,479	..	8,929	15,479	22,471	55,358
New Zealand ..	15,740	24,158	3,456	8,328	42	51,724
France	1,780	7,152	..	..	4,040	12,972
Denmark	..	..	..	..	5,841	5,841
Union of South Africa	3,038	..	..	..	..	3,038
Hong Kong ..	..	..	..	..	2,450	2,450
Other Countries ..	..	..	..	..	21	21
Total ..	505,428	344,260	364,397	565,720	1,504,116	3,284,921

The number and value of cattle hides, including calfskins imported into the Commonwealth during the five years 1915–16 to 1919–20 are as follows :—

CATTLE HIDES IMPORTED INTO THE COMMONWEALTH, 1915-16 TO 1919-20.

Particulars.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for 5 years.
No.	146,657	94,065	132,218	260,237	205,662	838,839
Value .. £	293,052	161,380	151,531	424,339	579,915	1,610,217

During the past five years the exports of calfskins amounted to 416,053, valued at £235,967, and of horse hides, 6,128, valued at £8,848 ; the imports of horse hides during the same period amounting to 9,058, valued at £11,319.

§ 7. Graphical Representation of Pastoral Production.

1. **General.**—As comparatively complete statistics relative to the number of horses, cattle, sheep and pigs are available from 1860, the graphical representation of the fluctuations in numbers for the Commonwealth as a whole, shewn on page 241, covers the period from 1860 to 1919.

2. *Horses.*—With relatively unimportant fluctuations the number of horses in the Commonwealth increased at a fairly consistent rate until 1895, when a decline set in, culminating in the losses of the drought of 1902. At this latter point the number was practically identical with that for 1890. From 1902 onwards a rapid improvement was experienced, the total for 1913 being the highest then recorded. The disastrous drought of 1914–15 was responsible for heavy losses, but subsequent annual increases made the total number of horses in 1918 the greatest ever recorded. As the result of the prolonged drought recently experienced throughout Australia the number of horses declined by 105,948 during 1919.

3. **Cattle.**—The graph for cattle furnishes evidence of rapid increase in number, interrupted by four marked periods of decline, of which the first extended from 1862 to 1866, the second from 1881 to 1885, the third from 1894 to 1902. So extensive was this last-mentioned decline that the number receded to that of 1879. From 1902 a rapid recovery took place, and the total for 1911 exceeded that existing at the end of the year 1895, though still short of the 12,311,617 cattle recorded in 1894. The fourth period of decline commenced in 1912, the figures from that year to 1914 shewing a slight decline, while those for 1915 shew a very serious falling-off, the difference between the 1911 and 1915 returns amounting to over 16 per cent. In 1916 the number of cattle commenced to ascend, and, assisted by considerable increases during the next two seasons, reached its highest point in 1918. The decrease in the number of cattle during 1919, i.e., 27,785, was remarkably small, considering the protracted nature of the drought of 1918–20.

4. **Sheep.**—In the case of sheep the graph shews that the upward movement in number is subject to periodic reversals.

The greatest of these occurred between 1891 and 1902, when the number of sheep declined by one-half, or nearly 53,000,000.

So great are the recuperative powers of Australia that at the end of 1911, nine years later, the number had increased by 40,000,000.

The second great period of decline set in in 1912, and at the end of the severe drought of 1914–15 the number of sheep had decreased by 24,000,000 as compared with 1911.

During the recent drought of 1918–20 the number declined by 11,532,154 in 1919, the greatest decline in any one year save the disastrous drought year of 1902 when the decrease amounted to 18,371,864.

5. **Pigs.**—The graph for pigs exhibits more numerous fluctuations than that for any of the other classes of live stock represented, and from 1904 to 1908 furnished evidence of a persistent decline. In 1909, however, an upward movement took place; and this was well maintained during the two succeeding years, the 1911 returns exceeding all previous records. The position fluctuated considerably during subsequent years, first descending then ascending, until in 1917 the number of pigs attained its maximum. During the next two years considerable decreases occurred, the numbers of pigs in 1919 being the lowest recorded since 1908.

SECTION VIII.

AGRICULTURAL PRODUCTION.

NOTE.—Except where otherwise stated, the "agricultural" years hereinafter mentioned are taken as ending on the 30th June.

§ 1. Introductory.

1. **Early Attempts at Agriculture.**—The instructions issued to Captain Phillip on the 25th April, 1787, directed him, amongst other things, to proceed as soon as possible to the cultivation of the soil "under such regulations as may appear to be necessary and best calculated for securing supplies of grain and provisions." When the settlers landed at Botany Bay, however, it was found that the glowing accounts published in England by members of Captain Cook's expedition of the fertility of the soil in that locality were considerably overdrawn. Even when Phillip and his company moved round to Port Jackson on the 26th January, 1788, matters were for a time in no better case. The ground in the immediate neighbourhood of the settlement was not suitable for the cultivation of cereal crops, and when the time came to cultivate the soil it was found that there were very few who possessed the slightest acquaintance with the art of husbandry.

2. **The First Sowing.**—In his despatch of the 15th May, 1788, Captain Phillip states that it was proposed to sow eight acres with wheat and barley, although, owing to the depredations of field mice and ants, he was doubtful of the success of the crops.

3. ***Discovery of Suitable Agricultural Land.***—A branch settlement was formed at Rosebill, on the Parramatta River, towards the close of 1788, and here grain crops were successfully raised. In his despatch of 12th February, 1790, Phillip refers to the harvest at Rosehill at the end of December, 1789, as consisting of 200 bushels of wheat and 60 of barley, in addition to small quantities of oats, Indian corn, and flax. By the year 1791 there were 213 acres under crop in this locality. In 1792 a new settlement was formed at Toongabbie, about three miles westward of Parramatta, where Phillip states "there are several thousand acres of exceeding good ground." The Hawkesbury Valley, which probably contains some of the richest land in the world, was first settled in 1794. For a long time agricultural operations in Australia were restricted to the narrow belt of country between the tableland and the east coast of New South Wales, as it was not until the year 1813 that a passage was discovered across the Blue Mountains to the fertile plains of the west.

§ 2. Progress of Agriculture.

1. **Early Records.**—In an "Account of Live Stock and Ground under Crop in New South Wales, 19th August, 1797," Governor Hunter gives the acreage under crop as follows:—Wheat, 3,361 acres; maize, 1,527 acres; barley, 26 acres; potatoes, 11 acres; and vines, 8 acres.

At a muster taken in 1808 the following was the return of crops:—Wheat, 6,877 acres; maize, 3,389 acres; barley, 544 acres; oats, 92 acres; peas and beans, 100 acres; potatoes, 301 acres; turnips, 13 acres; orchards, 546 acres; and flax and hemp, 24 acres.

By the year 1850 the area under crop had increased to 491,000 acres, of which 198,000 acres were cultivated in what is now the State of New South Wales, and 169,000 acres in Tasmania. At the end of 1850 the area under cultivation in Victoria, which was then the Port Phillip District of New South Wales, was 52,190 acres.

The gold discoveries of 1851 and subsequent years had at first a very disturbing effect on agricultural progress, the area under crop declining from 491,000 acres in 1850 to 458,000 acres in 1854; the area under cultivation in New South Wales decreased by nearly 66,000 acres, while in Tasmania a falling-off of over 41,000 acres was experienced. The demand for agricultural products occasioned by the large influx of population was, however, soon reflected in the increased area cultivated, for at the end of 1858 the land under crop in Australia totalled over a million acres. The largest increase took place in Victoria, which returned an area of 299,000 acres. For the same year South Australia had 264,000 acres in cultivation, Tasmania 229,000 acres, and New South Wales 223,000 acres.

2. Progress of Cultivation since 1860.—The following table shews the area under crop in each of the Commonwealth States and Territories at decennial intervals since 1860 and during each of the last five seasons. The area under permanent artificially-sown grasses is excluded in all the States, except for the years 1860–79 in the case of New South Wales, where the acreage cannot be separated. During those years, however, the area laid down under permanent grasses could not have been very large.

AREA UNDER CROP IN AUSTRALIA, 1860 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	Fed. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860–1	260,798	387,282	3,353	359,284	24,705	152,860	..	..	1,188,282
1870–1	426,976	692,840	52,210	801,571	54,527	157,410	..	..	2,185,534
1880–1	629,180	1,548,809	113,978	2,087,237	57,707	140,788	..	..	4,577,690
1890–1	852,704	2,031,955	224,993	2,093,515	69,678	157,376	..	..	5,430,221
1900–1	2,445,564	3,114,132	457,397	2,369,680	201,338	224,352	..	..	8,812,463
1910–11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	..	[illegible]
1915–16	5,796,376	5,711,265	729,588	3,763,570	2,189,456	333,334	274	4,371	18,528,234
1916–17	5,164,434	4,651,335	885,259	3,627,477	2,004,944	270,526	274	2,131	16,806,380
1917–18	4,461,172	4,110,225	727,958	3,079,778	1,679,772	238,199	134	1,744	14,298,982
1918–19	3,891,828	3,942,899	625,517	3,111,079	1,605,088	254,109	99	1,779	13,332,393
1919–20	3,773,577	4,000,815	563,762	3,058,770	1,028,169	270,955	363	2,109	13,298,516

The increase in the area under crop during the past ten years has been most marked in the case of Western Australia, New South Wales, and South Australia, the respective increases being 906,077, 593,016, 528,469 acres. During the same period an increase of 342,280 acres was experienced in Victoria, while Queensland and Tasmania suffered decreases of 43,028 and 3,071 acres respectively. The total area under crop in the Commonwealth increased during the period by 2,326,217 acres. The percentage of increase was particularly high in Western Australia, viz., 125 per cent. South Australia had an increase of 21 per cent., while New South Wales and Victoria added to their areas under crop to the extent of 19 and 9 per cent. respectively. The decreases for the ten years represented about 7 per cent. in Queensland and 1 per cent. in Tasmania, while the increase for the whole of the Commonwealth during the same period was 21 per cent.

3. Relation to Population.—From the following table it will be seen that the acreage under crop per 1,000 of the population has consistently declined in all the States during the past four years. The decreased areas are particularly noticeable in New South Wales,

Victoria, South Australia, and Western Australia, and are mainly attributable to the decline of wheat growing in Australia since 1915–16. Details for the past five seasons are as follows :—

TOTAL AREA UNDER CROP PER 1,000 OF POPULATION, 1915–16 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1915–16 ..	3,099	4,025	1,075	8,584	6,885	1,658	60	2,393	3,757
1916–17 ..	2,779	3,468	1,322	8,383	6,493	1,353	57	959	3,447
1917–18 ..	2,373	2,913	1,074	7,060	5,429	1,172	27	829	2,897
1918–19 ..	2,016	2,756	757	6,980	5,121	1,217	21	797	2,650
1919–20 ..	1,884	2,674	777	6,533	4,909	1,250	78	1,099	2,534

4. **Relation to Total Area.**—*The next table furnishes a comparison of the area under* crop in the several States and Territories and the Commonwealth with the respective total areas. For the Commonwealth as a whole, the area under crop in 1919–20 represented only about one acre in every 143. In Victoria the proportion was about one acre in every 14, in New South Wales one in 52, in Tasmania one in 62, in South Australia one in 80, in Western Australia one in 384, in Queensland one in 761, in the Federal Territory one in 285, and in the Northern Territory about one in 918,128.

PERCENTAGE OF AREA UNDER CROP ON TOTAL AREA, 1915–16 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	%	%	%	%	%	%	%	%	%
1915–16 ..	2.927	10.154	0.170	1.547	0.351	1.987	0.0001	0.749	0.973
1916–17 ..	2.608	8.625	0.206	1.491	0.321	1.612	0.0001	0.354	0.883
1917–18 ..	2.253	7.308	0.170	1.266	0.269	1.420	..	0.290	0.751
1918–19 ..	1.965	7.010	0.122	1.279	0.257	1.515	..	0.296	0.700
1919–20 ..	1.905	7.113	0.131	1.257	0.261	1.615	..	0.351	0.699

5. **Artificially-sown Grasses.**—In all the States considerable areas are devoted to *artificially-sown grasses, mainly sown on uncultivated land after burning off the existing* vegetation and consequently not included with "area under crops." Statistics regarding the area under such grasses are as shewn hereunder :—

AREA UNDER SOWN GRASSES, 1915–16 TO 1919–20.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Nor. Ter.	Fed. Ter.	Commonwealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1915–16	1,347,029	1,182,965	805,186	25,443	9,119	675,335	200	70	3,445,377
1916–17	1,357,067	1,292,817	383,378	29,644	8,327	654,072	200	70	3,706,093
1917–18	1,389,557	1,268,310	406,094	20,155	11,769	679,512	460	83	3,775,940
1918–19	1,438,282	1,289,498	418,467	21,987	14,158	666,954	600	83	3,830,124
1919–20	1,542,317	1,062,244	449,010	18,107	16,672	667,390	500	871	3,756,120

The considerable increase in the area of the grass lands of the Commonwealth is due in large measure to the great development of the dairying industry which has taken place during recent years, and which is referred to in the succeeding section.

§ 3. Relative Importance of Crops.

1. Distribution of Crops.—In the following table are furnished details concerning the areas in the several States under each of the principal crops for the season 1919–20 :—

DISTRIBUTION OF CROPS IN AUSTRALIA, 1919–20.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	Total for C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat	1,474,174	1,018,260	46,478	1,926,915	1,041,827	11,497	..	130	5,419,299
Oats	76,117	559,547	363	192,153	191,931	48,185	..	224	1,068,520
Maize	136,509	23,474	105,260	165	11	..	50	..	265,469
Barley—									
Malting ..	3,772	50,040	2,970	137,932	4,896	5,124	..	..	204,752
Other ..	1,582	35,274	296	19,905	4,271	1,169	..	..	62,557
Beans and Peas ..	427	9,655	158	6,101	330	22,822	..	..	39,553
Rye	1,207	784	3	728	422	519	..	..	3,663
Other Cereals ..	..	..	28	..	9	55	40	..	132
Hay	938,471	1,116,998	48,843	590,835	327,498	102,908	100	1,671	3,127,324
Green Forage ..	1,007,435	80,802	167,568	114,126	27,007	5,271	..	28	1,401,237
Grass Seed ..	..	1,235	3,131	39	..	2,360	..	..	6,765
Orchards and other Fruit Gardens	72,803	86,336	24,636	30,617	19,815	37,687	..	1	271,895
Vines—									
Productive ..	7,113	20,804	1,096	27,763	2,353	..	..	..	59,129
Unproductive ..	1,810	6,637	107	5,021	622	..	..	..	14,197
Market Gardens ..	9,872	12,633	1,752	1,343	2,410	367	..	39	28,416
Sugar-cane—									
Productive ..	4,827	..	84,877	..	..	..	..	..	89,704
Unproductive ..	5,741	..	63,592	..	..	..	..	..	69,333
Potatoes ..	20,043	53,918	4,432	3,411	3,585	28,511	..	7	113,907
Onions	283	6,863	194	403	86	13	..	..	7,842
Other root crops	882	2,087	2,038	372	103	2,553	50	..	8,085
Tobacco ..	1,604	406	321	..	..	..	..	..	2,331
Broom Millet ..	4,220	1,850	769	..	..	..	25	..	6,864
Pumpkins and Melons ..	3,436	1,089	11,743	250	413	..	100	..	17,031
Hops	..	72	..	..	..	1,312	..	..	1,384
All other crops ..	1,249	3,033	3,098	571	574	602	..	..	9,127
Total area ..	3,773,577	4,000,815	563,762	3,058,770	1,628,163	270,955	365	2,109	13,298,516

2. Relative Areas of Crops in States and Territories.—Taking the principal crops, *i.e.*, those in the case of which the cultivation amounts to more than 50,000 acres in the Commonwealth, the proportion of each in the various States and Territories to the total area under crop for the season 1919–20 is shewn in the next table. In four of the States, viz., New South Wales, Victoria, South Australia, and Western Australia, wheat-growing for grain is by far the most extensive form of cultivation, while in the same States, with the exception of New South Wales where green forage displaced hay for the first time, the hay crop is second in importance. In Victoria, South Australia, and Western Australia the oat crop occupies third position, while hay ranks third in New South Wales followed by maize. In Queensland, on the other hand, the three principal crops in the order of importance are green forage, sugar-cane, and maize, while in Tasmania hay, oats, and orchards and fruit gardens, occupy the leading positions. For the Commonwealth as a whole, the wheat, hay, and oat crops represent nearly 80 per cent. of the total area under crop.

PROPORTION OF AREA UNDER CHIEF CROPS, 1919-20.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	%	%	%	%	%	%	%	%	%
Wheat ..	39.06	47.95	6.25	63.00	63.99	4.24	..	6.59	48.27
Hay ..	24.87	27.92	8.66	19.32	20.11	37.98	27.40	79.23	23.52
Oats ..	2.02	13.99	0.06	6.28	11.79	17.78	..	10.62	8.03
Green Forage..	26.70	2.24	27.95	3.73	1.66	1.95	..	1.33	10.54
Maize ..	3.62	0.59	18.67	0.01	0.00	..	13.70	..	2.00
Orchards and Fruit Gardens	1.93	2.16	4.37	1.00	1.22	13.91	..	0.05	2.04
Barley ..	0.14	2.13	0.58	5.16	0.50	2.32	..	..	2.01
Sugar-cane	0.28	..	26.34	..	..	..	..	..	1.19
Potatoes ..	0.53	1.35	0.79	0.11	0.22	10.52	..	0.33	0.86
Vineyards	.24	0.68	0.21	1.07	0.18	..	..	..	0.85
All other..	0 61	0.99	4.12	0.32	0.27	11.30	58.90	1.85	0.99
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

3. Relative Positions of States and Territories in regard to Principal Crops.—The relative proportion of acreage of the several crops for 1919-20 and the position regarding them in each State and Territory is shewn in the following table. New South Wales exhibited the largest area under green forage and maize, and was second in hay, orchards, and sugar-cane; Victoria was in the leading position in regard to hay, oats, orchards and fruit gardens, and potatoes; and Queensland was first in sugar-cane and second in green forage and maize. South Australia had the largest area under wheat, vineyards, and barley, and occupied second position in regard to oats; Western Australia held third position in oats and barley, and fourth in wheat, hay, and vineyards; while Tasmania was second in regard to potatoes, and third in orchards and fruit gardens.

RELATIVE POSITIONS OF STATES AND TERRITORIES IN REGARD TO AREA UNDER EACH OF THE PRINCIPAL CROPS DURING THE SEASON 1919-20.

Crop.		N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'w'lth.
Wheat..	.. %	22.97	29.88	0.72	30.02	16.23	0.18	..	0.00	100.00
	position	3	2	5	1	4	6	..	7	..
Hay ..	.. %	30.01	35.72	1.56	18.89	10.47	3.29	0.00	0.06	100.00
	position	2	1	6	3	4	5	8	7	..
Oats ..	.. %	7.12	52.37	0.03	17.99	17.96	4.51	..	0.02	100.00
	position	4	1	6	2	3	5	..	7	..
Green Forage	.. %	71.90	6.41	11.24	8.14	1.93	0.38	..	0.00	100.00
	position	1	4	2	3	5	6	..	7	..
Maize ..	.. %	51.42	8.84	39.65	0.06	0.01	..	0.02	..	100.00
	position	1	3	2	4	6	..	5	..	..
Orchards and Fruit Gardens	.. %	26.78	31.75	9.06	11.26	7.29	13.86	..	0.00	100.00
	position	2*	1	5	4	6	3	..	7	..
Barley	.. %	2.00	31.92	1.23	59.07	3.43	2.35	..	..	100.00
	position	5	2	6	1	3	4	..	..	..
Sugar-cane	.. %	6.64	..	93.36	..	..	..	..	..	100.00
	position	2	..	1	..	..	..	..	..	..
Potatoes	.. %	17.59	47.34	3.69	2.99	3.15	25.03	..	0.01	100.00
	position	3	1	4	6	5	2	..	7	..
Vineyards	.. %	12.17	37.42	1.64	44.71	4.06	..	..	..	100.00
	position	3	2	5	1	4	..	..	..	..
All other crops	.. %	17.67	30.27	17.71	7.52	3.31	23.33	0.16	0.03	100.00
	position	4	1	3	5	6	2	7	8	..
Total area under crop	.. %	28.38	30.08	4.24	23.00	12.24	2.04	0.00	0.02	100.00
	position	2	1	5	3	4	6	8	7	..

4. **Acreage of Principal Crops, Commonwealth.**—The acreage devoted to each of the principal crops in the whole Commonwealth during the last five seasons is shewn below :—

ACREAGE OF CHIEF COMMONWEALTH CROPS, 1915-16 TO 1919-20.

Crop.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat	12,484,512	11,532,828	9,774,658	7,990,165	6,419,299
Hay	3,597,771	2,671,862	2,212,914	2,692,904	3,127,324
Oats	721,644	844,130	615,800	768,152	1,068,520
Green Forage ..	515,561	390,131	373,850	586,440	1,401,237
Maize	323,627	380,072	332,057	286,812	265,469
Orchards and Fruit Gardens	247,008	257,687	262,134	264,751	271,895
Barley	189,514	230,253	204,870	254,869	267,309
Sugar-cane	164,285	178,190	180,484	171,024	159,037
Potatoes	120,993	149,895	136,241	111,169	113,907
Vineyards	62,124	65,394	67,862	70,058	73,326
All other Crops ..	121,185	125,918	132,112	136,049	131,193
Total ..	18,528,234	16,806,380	14,298,982	13,332,393	13,298,516

During the period under review the area devoted to the several crops has varied considerably, that under wheat attaining a maximum in the season 1915-16, and a minimum in 1919-20, the decline during the four years amounting to 6,065,213 acres, while hay also reached its maximum area in 1915-16, and its minimum in 1917-18. Of the other crops, green forage, oats, orchards and fruit gardens, and vineyards attained *their maximum areas in 1919-20, maize and potatoes, in 1916-17, sugar-cane in 1917-18* and barley in 1918-19.

§ 4. Wheat.

1. **Progress of Wheat-Growing.**—(i) *Acreage.* The area under wheat for grain is given below for each State at various periods since 1860, and is shewn diagrammatically in the graph hereinafter :—

AREA UNDER WHEAT, 1860-1 TO 1920-1.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	128,829	161,252	196	273,672	13,584	66,430	..	..	643,983
1870-1	147,997	284,167	2,892	604,761	26,640	57,382	..	..	1,123,839
1880-1	253,138	977,295	12,632	1,733,542	27,686	50,022	..	..	3,054,305
1890-1	333,233	1,145,163	10,390	1,673,573	33,820	32,452	..	..	3,228,631
1900-1	1,530,609	2,017,321	79,304	1,913,247	74,308	51,825	..	..	5,666,614
1910-11	2,128,826	2,398,089	106,718	2,104,717	581,862	52,242	2	..	7,372,456
1915-16	4,189,493	3,679,971	93,703	2,739,214	1,734,117	48,642	..	2,372	12,484,512
1916-17	3,805,699	3,125,692	227,778	2,778,357	1,566,608	27,789	..	905	11,532,828
1917-18	3,328,856	2,690,216	127,815	2,355,692	1,249,762	21,812	..	515	9,774,658
1918-19	2,409,633	2,214,400	21,637	2,186,349	1,146,103	11,917	..	36	7,990,165
1919-20	1,474,174	1,916,269	48,478	1,626,915	1,041,827	11,497	..	130	6,419,299
1920-1*a*	3,124,370	2,295,865	175,730	2,163,846	1,272,955	22,000	..	..	9,054,584

(*a*) Preliminary figures except Victorian which are final.

The area devoted in the Commonwealth to the production of wheat for grain was higher for the season 1915–16 than for any previous season, there being an increase in all the States with the exception of Queensland, which shewed a falling-off. The figures for the season 1916–17 shew a reduction in area under wheat for grain throughout the Commonwealth with the exception of Queensland and South Australia, where the acreages for both States are the highest on record. During the next three years a serious decline took place in the area under wheat in all the States, the Commonwealth total for the latter year exhibiting a shortage of over 6 million acres as compared with 1915–16. The average area under wheat in the Commonwealth during the last ten seasons, 1910 to 1920, was 8,927,988 acres, or roughly 2½ million acres more than were sown during 1919–20.

Although final figures for 1920–21 for all the States are not yet available, the data to hand indicate the total area under wheat for grain in the Commonwealth at about 9,054,584 acres, representing a notable increase of 41 per cent. on the 1919–20 area. This increase was in evidence in all the wheat producing States, being most marked in New South Wales, where the area under wheat for grain increased by 1,650,196 acres. The total for the Commonwealth during 1920–21 exceeded the ten-yearly average by 126,596 acres.

(ii) *Yield.* The production during the same period for each State and for the Commonwealth as a whole is given below :—

PRODUCTION OF WHEAT, 1860–1 TO 1920–21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	Fed. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bush.	Bush.	Bushels.
1860–1	1,581,598	3,459,914	3,136	3,576,593	208,332	1,415,896	..	..	10,245,469
1870–1	999,595	2,870,409	39,787	6,961,164	316,769	896,881	..	..	12,084,605
1880–1	3,717,355	9,727,369	223,243	8,606,510	332,232	750,040	..	..	23,356,749
1890–1	3,649,216	12,751,295	207,990	9,399,389	467,389	642,980	..	..	27,118,259
1900–1	16,173,771	17,847,321	1,194,088	11,253,148	774,653	1,110,421	..	..	48,353,402
1910–11	27,913,547	34,813,019	1,022,273	24,344,740	5,897,540	1,120,744	20	..	95,111,983
1915–16	66,726,459	58,521,706	414,438	34,134,504	18,236,355	993,790	..	38,451	179,065,703
1916–17	36,585,380	51,162,438	2,463,141	45,745,064	16,103,216	348,330	..	12,620	152,420,189
1917–18	37,704,626	37,737,552	1,035,268	28,692,594	9,303,787	252,383	..	7,374	114,733,584
1918–19	18,324,640	25,239,871	104,509	22,936,925	8,845,387	186,570	..	360	75,638,262
1919–20	4,388,022	14,858,380	311,638	14,960,413	11,222,950	213,589	..	813	45,975,805
1920–1(a)	53,715,840	39,468,625	4,174,155	34,256,914	12,230,200	418,000	..	..	144,243,734

(a) Final figures Victoria, those for remaining States approximate.

The 1915–16 harvest of 179,065,703 bushels was the largest ever reaped in the Commonwealth. The 1916–17 yield of 152,420,189 bushels comes next in order, followed by the yields obtained during 1917–18, 1913–14, 1910–11, 1912–13, and 1909–10, *i.e.*, 114,733,584 ; 103,344,132 ; 95,111,983 ; 91,981,070, and 90,413,597 bushels respectively. These seven seasons represent the only occasions on which a harvest exceeding 90,000,000 bushels was garnered. During the past four seasons the production of wheat in the Commonwealth has declined from 179,065,703 bushels in 1915–16 to 45,975,805 bushels in 1919–20, a decrease of 133,089,898 bushels, or 33,272,475 bushels per annum. In order to arrest this serious decline an earnest endeavour was made throughout the wheat growing States to increase the acreage during 1920–21.

Satisfactory Government guarantees and the prospects of high prices ruling in England when the crop would be garnered proved sufficient inducement to growers to sow 9,054,584 acres, an increase of 2,635,285 acres on the 1919–20 area. The season was an exceptionally good one, the average yield per acre equalling nearly 16 bushels, and the total production amounted to 144,243,734 bushels, which figure has only been exceeded on two occasions, viz., in 1915–16 and 1916–17.

(iii) *Average Yields.* In the next table will be found the average yield of wheat per acre in each of the last five seasons, and for the decennium 1910–20:—

YIELD OF WHEAT PER ACRE, 1915-16 TO 1919-20.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bshls.	Bushels.	Bushels.
1915-16..	15.94	15.90	4.42	12.46	10.52	20.43	..	16.21	14.34
1916-17..	9.61	16.37	10.81	16.46	10.28	12.53	..	14.06	13.22
1917-18..	11.33	14.03	8.10	12.18	7.44	11.57	..	14.32	11.74
1918-19..	7.60	11.40	4.83	10.49	7.72	15.66	..	10.00	9.47
1919-20..	2.98	7.75	6.71	7.77	10.77	18.58	..	5.85	7.16
Average 10 seasons 1910-20	(a)10.75	11.92	10.43	10.08	8.85	18.44	2.50	(b)14.14	10.69

(a) Including Federal Territory. (b) Average for nine seasons.

As the above figures shew, there were considerable variations in the average yields, chiefly due to the vagaries of the seasons. Since 1915–16, the record wheat producing year, the average yield per acre has continuously declined, culminating in the low yield of 7.16 bushels for the drought year of 1919–20.

(iv) *Relation to Population.* During the seasons embraced in the following table, the Commonwealth's production of wheat per head of population has varied between 8¾ bushels in 1919-20 and 36¼ bushels in 1915–16. The State in which wheat-growing generally occupies the most important position relatively to population is South Australia, which in 1919-20 had a yield averaging nearly 32 bushels per head. Queensland and Tasmania are the States in which the average production of wheat per head is least, the quantity raised being considerably below that required for local consumption. Particulars for the past five seasons are as follows:—

AUSTRALIAN WHEAT PRODUCTION PER 1,000 OF POPULATION, 1915-16 TO 1919-20.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1915–16..	35,675	41,241	611	77,854	57,344	4,944	..	21,023	36,307
1916–17..	19,685	36,574	3,679	105,718	52,147	1,742	..	5,677	31,264
1917–18..	19,943	26,745	1,527	65,776	30,068	1,242	..	3,505	23,247
1918–19..	9,493	17,641	150	51,462	28,220	893	..	161	15,036
1919–20..	2,191	9,932	430	31,996	33,839	985	..	424	8,762

The normal annual consumption of wheat in Australia, exclusive of the requirements for seed, poultry and other live stock, is 327 lbs. (5.448 bushels) per head of population.

2. Australian and Foreign Wheat Yields.—In the next table will be found a statement of the average return per acre in the principal wheat-growing countries of the world, ranging from Denmark with a maximum of 47.5 bushels per acre to Mexico with a minimum of 8 bushels per acre. Australia with approximately 7.2 occupies a relatively subordinate position.

AVERAGE YIELD OF WHEAT PER ACRE IN VARIOUS COUNTRIES, 1919.

Country.	Average Yield in bushels per acre.	Country.	Average Yield in bushels per acre.
Denmark	47.5	France	15.7
Netherlands	37.2	Argentine Republic ..	14.3
New Zealand	32.7	Austria (1916)	13.8
Belgium	30.1	India	12.6
United Kingdom	29.2	United States	12.5
Sweden	27.3	Spain	12.5
Switzerland	27.1	Russia in Europe (1916) ..	10.4
Egypt (1918)	25.3	Canada	10.1
Germany	24.9	Union of South Africa (1918)	9.0
Japan	21.7	Uruguay	8.0
Hungary (1915)	17.9	Portugal (1918)	7.6
Bulgaria	16.4	Algeria	7.5
Rumania	16.4	**Australia** (a)	7.2
Italy	16.0	Russia in Asia (1915) ..	7.0
Serbia (1914)	16.0	Tunis	6.2
Chile	15.9	Mexico (1914)	3.0

(a) Average yield per acre for 10 years, 10.69.

3. Wheat Crops of the World.—The latest available official statistics of the production of wheat in various countries are given in the following table :—

WHEAT YIELD IN VARIOUS COUNTRIES, 1919.

Country.	Yield in bushels.	Country.	Yield in bushels.
United States	912,384,000	Austria (1916)	27,811,000
Russia in Europe (1917) ..	377,900,000	Algeria	20,961,000
India	376,880,000	Chile	20,930,000
Russia in Asia (1917) ..	230,406,000	Turkey in Europe (1915)..	17,449,200
Argentine Republic ..	214,400,000	Persia (1915)	15,510,400
Canada	193,260,000	Mexico (1918)	10,470,000
France	177,929,000	Belgium	9,892,000
Italy	169,517,000	Sweden	9,507,000
Spain	*129,215,000*	*Tunis*	*7,347,000*
Hungary (1917)	111,995,000	Union of South Africa ..	6,628,000
Germany	79,824,000	Portugal (1918) ..	6,051,000
United Kingdom ..	69,320,000	Netherlands	6,013,000
Rumania	48,287,000	Denmark	5,914,000
Australia (a)	**45,976,000**	Uruguay	5,732,000
Bulgaria	34,019,000	New Zealand	4,560,000
Turkey in Asia (1915) ..	33,929,000	Serbia (1918)	4,000,000
Egypt (1918)	32,555,000	Switzerland	3,523,000
Japan	29,809,000		

(a) Average yield for 10 years, 95,479,948.

Various estimates of the total quantity of wheat produced in the world have been made. That furnished by the International Institute of Agriculture, Rome, gives the following figures for the ten years 1909 to 1918 :—

WORLD'S PRODUCTION OF WHEAT, 1909 TO 1918.

Year.	1,000,000 bushels.	Year.	1,000,000 bushels.	Year.	1,000,000 bushels.
1909	3,575	1913.. ..	4,035	1917.. ..	3,243
1910	3,532	1914.. ..	3,579	1918.. ..	3,675
1911	3,525	1915.. ..	4,270	Average for 10 years ..	3,655
1912	3,810	1916.. ..	3,301		

In this estimate the figures given for Australia and New Zealand relate to the agricultural year ending on 30th June in the year specified.

For the ten years referred to, the Australian production of wheat aggregated 999,237,270 bushels, thus representing 2.7 per cent. of the world's production. The total quantity of wheat produced in the British Empire during the same period of ten years was approximately 7,608 million bushels, so that the Australian production of wheat represented 13.1 per cent. of that of the British Empire, while the British Empire production represented 20.82 per cent. of the world's total.

4. Prices of Wheat.—(i) *British Wheat.* Since the United Kingdom is the largest importer of Australian wheat, the price of wheat in the British markets is a matter of prime importance to the local producer. The table below gives the average prices per Imperial quarter realised for British-grown wheat :—

PRICES OF BRITISH WHEAT PER QUARTER, 1861 TO 1919.

Year.	Average for Year.		Highest Weekly Average.		Lowest Weekly Average.		Year.	Average for Year.		Highest Weekly Average.		Lowest Weekly Average.	
	s.	d.	s.	d.	s.	d.		s.	d.	s.	d.	s.	d.
1861 ..	55	4	61	6	50	0	1914 ..	34	11	43	3	30	11
1871 ..	56	8	60	0	52	6	1915 ..	52	10	62	0	42	9
1881 ..	45	4	55	2	40	9	1916 ..	58	5	75	10	46	3
1891 ..	37	0	41	8	32	3	1917 ..	75	9	83	10	70	3
1901 ..	26	9	27	8	25	8	1918 ..	72	10	74	5	71	2
1911 ..	31	8	33	4	30	0	1919 ..	72	11	73	4	72	5
1913 ..	31	8	34	3	30	0							

(ii) ***Australian Export Values.*** In the next table will be found a statement of the export values of Australian wheat during each of the last five years :—

EXPORT VALUES OF AUSTRALIAN WHEAT, 1915-16 TO 1919-20.

Year	1915–16.		1916–17.		1917–18.		1918–19.		1919–20.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Price per bushel	5	7	4	10	5	3	5	1	5	6

The export values here shewn are the average declared values for the successive years at the several ports of shipment in the Commonwealth.

5. Imports and Exports of Wheat and Flour.—(i) *Quantities.* The table hereunder shews the imports, exports, and net exports of wheat and flour from 1915–16 to 1919–20. For the sake of convenience, flour has been expressed at its equivalent in wheat, one ton of flour being taken as equal to 50 bushels of grain. During 1915–16 the Commonwealth imports of wheat and flour were equivalent to 5,633,596 bushels of wheat occasioned by the failure of the Australian wheat crop during the 1914–15 drought year. In ordinary seasons the import of wheat and flour is negligible. During the past five years the export has ranged between 35,969,195 bushels in 1915–16 and 108,360,358 bushels in 1919–20, the net exports for the period averaging 63,782,847 bushels.

IMPORTS AND EXPORTS OF WHEAT AND FLOUR, COMMONWEALTH, 1915-16 TO 1919-20.

Year.	Imports.			Exports.			Net Exports.
	Wheat.	Flour.	Total.	Wheat.	Flour.	Total.	
	Bushels.	Eq. Bushels.(a)	Bushels.	Bushels.	Eq. Bushels.(a)	Bushels.	Bushels.
1915–16	5,616,696	16,900	5,633,596	23,621,445	7,347,750	35,969,195	30,335,599
1916–17	40	3,000	3,040	55,278,872	14,531,650	69,810,522	69,807,482
1917–18	20	1,050	1,070	22,981,772	18,704,150	41,685,922	41,684,852
1918–19	50	2,768	2,818	44,563,597	24,169,750	68,733,347	68,730,529
1919–20	285	4,300	4,585	82,470,658	25,889,700	108,360,358	108,355,773

(a) Equivalent in bushels of wheat.

estination of Exported Breadstuffs. In the next two tables will be found a principal countries to which the Commonwealth exported wheat and flour h year of the period 1915–16 to 1919–20. The countries are as shown in the Customs returns, but owing to the fact that in normal times wheat ships are instructed to call for orders at various ports, the countries to which these ports not always be considered as the ultimate destination of the whole of the wheat exported to them.

RTS OF WHEAT FROM THE COMMONWEALTH, 1915-16 TO 1919-20.

e which ted.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for Five Years.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
ngdom	14,494,248	22,715,735	5,309,162	9,104,560	50,074,725	101,698,430
..	2,186,567	8,562,240	5,074,098	674,363	13,010,455	29,507,723
..	267,568	4,842,000	..	11,741,477	2,265,283	19,116,328
..	3,258,313	8,154,602	517,969	2,950,015	1,397,738	16,278,630
South ..	2,919,608	6,549,395	1,216,172	541,778	1,220,147	12,447,100
tes ..	..	357,643	6,593,878	3,510,762	73,293	10,535,576
..	..	..	702,958	1,407,775	6,381,738	8,492,471
..	..	..	225,820	4,306,312	1,522,593	6,054,725
nd ..	30,380	225,852	1,295,448	1,452,625	2,393,667	5,397,972
ands (a)	2,960,558	884,615	..	..	624,425	4,469,598
..	..	540,482	..	1,369,105	1,645,125	3,554,712
..	..	..	..	2,134,500	523,065	2,657,565
..	156,302	1,154,355	340,965	660,318	131,023	2,442,963
..	..	1,247	392	2,142,212	52,645	2,196,496
..	1,550,252	..	..	..	..	1,550,252
..	..	..	..	975	3,600	4,575
ntries	797,645	1,290,706	1,704,917	2,566,820	1,151,136	7,511,224
..	28,621,441	55,278,872	22,981,772	44,563,597	82,470,658	233,916,340

(a) For orders.

xports of flour during the same period and the principal countries of destination llows :—

RTS OF FLOUR FROM THE COMMONWEALTH, 1915-16 TO 1919-20.

to which Exported.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	Total for Five Years.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
ngdom	43,604	127,502	145,914	136,254	72,828	526,102
.. .. ..	1,345	9,772	13,994	129,992	92,537	247,640
tlements ..	6,023	9,755	23,609	24,386	63,508	126,281
.. .. ..	14,087	33,320	32,597	..	33,407	113,411
South Africa ..	22,019	25,106	7,330	12,892	39,513	106,860
Islands	3,383	..	35,158	27,180	39,942	105,663
.. .. ..	11,674	13,826	15,573	27,444	30,408	98,925
.. .. ..	14,142	25,679	6,099	35,804	..	81,724
tes	..	8,131	54,889	3,865	..	66,885
g	1,442	648	3,604	17,898	36,506	60,098
.. .. ..	53	300	3,702	1,258	24,876	30,189
.. .. ..	33	83	..	23,629	486	24,231
.. .. ..	1,507	4,072	2,530	4,515	7,773	20,397
onia	3,566	3,533	3,314	3,804	3,999	18,216
nd	2,190	9,006	5,736	511	256	17,699
.. .. ..	1,257	2,199	2,280	2,212	2,257	10,205
.. .. ..	342	20	..	47	8,191	8,600
.. .. ..	..	112	..	1,968	4,532	6,612
.. .. ..	384	335	923	880	1,199	3,721
East Africa ..	216	409	..	..	632	1,257
ntries	20,688	16,825	16,831	28,856	54,943	138,143
al	146,955	290,633	374,083	483,395	517,793	1,812,859

For the five years under review the export of wheat to the United Kingdom amounted to 101,698,436 bushels, or 43½ per cent. of the total export for the period, while the export of flour to the United Kingdom aggregated 526,102 tons, or 29 per cent. of the total export. During the quinquennium the heaviest exports of flour have been to the United Kingdom, Egypt, Straits Settlements, France, South Africa, and the Philippine Islands.

(iii) *Exports of Wheat and Flour.* From the foregoing returns it will be seen that the quantity of Australian wheat exported in the form of flour during the past five years represents, on the average, about 28 per cent. of the total equivalent in wheat exported as wheat or flour from the Commonwealth.

A point of some interest in connexion with the export of wheat, and one which bears also on the proportions of wheat and flour exports just referred to, is that concerning the quantity of phosphoric acid which this export has the effect of removing from the Commonwealth, and the necessity which exists for the return to the soil of this substance in some form.

According to an estimate furnished by the chemist to the New South Wales Department of Agriculture (F. B. Guthrie, Esq., F.C.S., etc.), the proportions of milled product from a bushel (60 lbs.) of wheat are, approximately, 42 lbs. of flour, 9 lbs. of bran, and 9 lbs. of pollard, while the percentage of phosphoric acid contained in these products is as follows:—

Flour	0.32 per cent., or 0.13 lb. per bushel.	
Bran	3.00 ,,	0.27 ,,
Pollard	0.90 ,,	0.08 ,,

The total amount of phosphoric acid contained in a bushel of wheat is, therefore, 0.48 lb., of which 0.13 lb. is in the flour and 0.35 lb. in the offal.

During the last ten years the net exports from the Commonwealth of wheat and its milled products have amounted to 409,304,833 bushels of wheat, 2,570,687 tons of flour, and 3,862,980 bushels of bran, pollard, and sharps. On the basis of the figures quoted above this export would contain no less than 257,285,136 lbs. of phosphoric acid, the value of which as a fertilizer would amount to nearly three million pounds sterling.

(iv) *Local Consumption of Wheat.* The estimated consumption of wheat for food and for seed purposes in the Commonwealth during the past ten years is given in the following tables:—

WHEAT USED FOR HUMAN CONSUMPTION IN THE COMMONWEALTH, 1911 TO 1919-20.

Year.	Flour Milled.	Net Exports of Flour.		Net Quantity Available for Home Consumption.		Net Quantity Available per Head of Population.	
		Flour.	Flour in Biscuits Exported.	Flour.	Equivalent in Terms of Wheat.	Flour.	Equivalent in Terms of Wheat.
	Tons.	Tons.	Tons.	Tons.	Bushels.	Tons.	Bushels.
1911 ..	696,301	175,649	2,570	518,082	25,904,100	.1154	5.769
1912 ..	677,063	167,948	2,820	506,285	25,314,250	.1090	5.450
1913 ..	760,613	221,605	2,600	536,408	26,820,400	.1117	5.583
1914 ..	713,845	174,180	2,400	537,265	26,863,250	.1092	5.461
1915 ..	541,810	7,633	2,160	532,017	26,600,850	.1075	5.374
1915-16 ..	577,038	146,618	2,650	427,770	21,388,500	.0867	4.335
1916-17 ..	869,975	290,572	2,885	576,518	28,825,900	.1183	5.913
1917-18 ..	985,761	374,062	9,810	601,889	30,094,450	.1220	6.098
1918-19 ..	1,046,268	483,340	6,437	556,491	27,824,550	.1106	5.531
1919-20 ..	1,050,228	517,708	4,590	527,930	26,396,500	.1006	5.031
Aggregate 10 years	7,918,892	2,559,315	38,922	5,320,655	266,032,750	.1090	5.448

ESTIMATED QUANTITY OF WHEAT USED FOR SEED PURPOSES IN THE COMMONWEALTH, 1910 TO 1919.

Year.	Area for Grain and Hay.	Wheat for Seed Purposes.		
		Quantity.	Per Acre.	Per Head of Population.
	Acres.	Bushels.	Bushels.	Bushels.
1910	8,527,308	8,332,000	.977	1.907
1911	8,859,949	8,282,000	.935	1.844
1912	9,112,676	8,484,000	.931	1.827
1913	10,661,430	9,747,000	.914	2.029
1914	11,012,679	10,059,000	.913	2.045
1915	14,414,024	13,041,000	.905	2.634
1916	12,894,917	11,523,000	.894	2.348
1917	10,910,069	9,713,000	.890	1.968
1918	9,428,398	9,0[illegible]4,000	.960	1.800
1919	8,250,572	7,774,000	.942	1.482
Aggregate for 10 years ..	104,072,622	96,009,000	.923	1.977

In addition to the above, there is to be taken into consideration grain fed to poultry and other live stock. This, doubtless, varies in quantity from year to year according to the prices current for wheat, and other causes. No data are available on which to base an estimate of actual quantity so consumed. The flour available for human consumption necessarily fluctuates from year to year coincident with stocks being heavy or light. In some years the flour available per head of population, after deducting net exports from quantity milled, shews a substantial increase over the average for the previous year, this, however, being counterbalanced by a decline in the following year. The average quantity of flour consumed per annum for the ten years under consideration was 0.1090 tons per head of population, which, when expressed in equivalent terms in wheat, represents 5.448 bushels. The estimates of quantity of grain used for seed purposes have been based on data supplied by the Agricultural and Statistical Departments of the several States giving average quantities of seed used per acre for wheat sown either for grain or hay. The average annual quantity thus used during the ten years was 1,977 bushels per head of population, and 0.923 bushels or nearly 55½ lbs. per acre sown.

6. Value of the Wheat Crop.—The estimated value of the wheat crop in each State and in the Commonwealth during the season 1919–20 is shewn below :—

VALUE OF THE WHEAT CROP, (a) 1919–20.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
Aggregate value..	2,413,420	5,757,622	101,282	6,741,186	5,330,901	78,316	450	20,423,177
Value per acre ..	£1/12/9	£3/0/0	£2/3/7	£3/10/0	£5/2/4	£6/16/3	£3/4/9	£3/3/8

(a) Exclusive of the value of straw.

7. The Australian Wheat Marketing Scheme.—(i) *General Principles.* Owing to the abnormal conditions prevailing, a Wheat Marketing Scheme was entered into by the Governments of the Commonwealth and of the States of New South Wales, Victoria, South Australia, and Western Australia, for the purpose of realizing to the best advantage the 1915–16 wheat harvest of the States named, and of making advances to farmers pending realization. It was subsequently decided that the 1916–17 harvest, and later, the 1917–18, 1918–19, 1919–20 and 1920–21 harvests, should be dealt with on similar lines to those of the 1915–16 harvest.

The general principles of the scheme may be shortly stated thus :—

1. That all growers should participate equitably in the realization of the harvest and the proceeds thereof.
2. That the limited freights available should be allotted between the States in accordance with the exportable surplus of each.

The securing and general allotment of freights with the exception of the 1920–21 crop was under the control of the Chartering Agents, who were responsible to the Commonwealth Government. The Australian Wheat Board made its own chartering arrangements for 1920–21.

The distribution of freights among the States is in charge of the Australian Wheat Board, which also has the duty of realizing the crop. This Board consists of Ministerial representatives of the Governments of the Commonwealth and of the States and representatives of the growers, one from each State. It has the assistance of an Advisory Board consisting of well-known wheat shippers. A London Wheat Committee, consisting of the High Commissioner and the Agents-General of the States concerned, acting with the advice of the London representatives of the wheat shippers, arranges overseas sales. Adjustments are to be made between the States so that, having regard to the quantity shipped, each will ultimately receive the average net result of the whole of the overseas realizations.

In certain States the crop is bought by the State Government, and in others the wheat is received from the growers for sale on their behalf.

The Australian Wheat Board fixes all prices at which wheat may be sold, except in the case of poultry feed, which is left to the States to regulate.

Each State has a local Board or Commission to control the operations of the scheme within the State concerned. This Board or Commission effects all local sales, including sales to millers.

(ii) *Advances and Finance.* Under arrangements with the Australian banks made by the Commonwealth and State Governments, advances are made to farmers upon delivery of their wheat at railway stations to representatives of agents appointed by the different State Governments. The following advances per bushel have been made in respect of the six pools for each of the States up to the 1st August, 1921 :—

POOLED WHEAT ADVANCES PER BUSHEL, 1915-16 TO 1920-21.

State.	1915–16. (b)	1916–17.	1917–18. (a)	1918–19. (a)	1919–20. (a)	1920–21.
	s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
New South Wales	4 10	3 3	4 0	4 10	7 6	6 3
Victoria ..	4 9	(a) 4 0	5 0	5 2	7 6	6 3
South Australia	4 7½	3 3	4 9	5 4	8 9	6 3
Western Australia	4 7½	(a) 4 1½	4 9	5 2	8 6	6 3

(a) Less rail freight. (b) Less rail freight and handling charges.

Proceeds of wheat as realized are applied in reduction of the bank overdrafts caused by payment of advances and expenses. The rate of interest payable to the banks is six per cent. for 1920–21, five per cent. being the rate for previous pools. The Government of each State has undertaken to repay all advances made on account of such State, and the Commonwealth Government has guaranteed repayment by the States. Advances to growers are made by means of certificates issued by the agents appointed by the various States. The certificates are payable at banks named by the growers.

(iii) *Results of the Scheme.* In all the States, certain wheat, particularly seed wheat, has not been brought under the scheme. The quantity of wheat pooled therefore differs from that harvested in each State. In addition, wheat grown in one State may be pooled in another. A considerable quantity of New South Wales wheat is included in Victorian returns, and the Victorian total also includes a small quantity of South Australian wheat.

Deliveries made on account of each harvest to 1st August, 1921, are as follows :—

WHEAT POOLED IN EACH STATE, 1915-16 TO 1920-21.

State in which Pooled.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	1920–21. (to 1/8/1921).
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
New South Wales ..	58,574,000	32,050,000	33,714,000	13,918,000	457,000	50,982,000
Victoria	59,926,000	50,407,000	36,369,000	23,337,000	12,368,000	38,563,000
South Australia ..	29,894,000	41,997,000	25,867,000	20,472,000	12,694,000	31,833,000
Western Australia ..	15,004,000	13,823,000	7,529,000	7,736,000	9,743,000	10,475,000
Total ..	163,398,000	138,277,000	103,479,000	65,463,000	35,262,000	131,853,000

On 1st August, 1921, the total overdraft on all pools amounted to £7,108,000.

The quantities of wheat disposed of and in hand on that date were as follows :—

POOLED WHEAT DISPOSED OF AND IN HAND IN EACH STATE, 1st AUGUST, 1921.

1915–16. (In thousands of bushels.)

Particulars.	N.S.W.	Vic.	S. Aust.	W. Aust.	Total.
Shipments	28,977	37,772	20,895	10,169	97,813
Local sales	29,597	22,154	8,502	4,835	65,088
Stocks on hand	..	..	497	..	497
Total	58,574	59,926	29,894	15,004	163,398

1916–17. (In thousands of bushels.)

Particulars.	N.S.W.	Vic.	S. Aust.	W. Aust.	Total.
Shipments	7,893	25,462	23,013	2,466	58,834
Local sales	21,631	23,699	14,045	11,116	70,491
Stocks on hand	..	..	4,939	..	4,939
Adjustment of stocks	2,526	1,246	..	241	4,013
Total	32,050	50,407	41,997	13,823	138,277

1917–18. (In thousands of bushels.)

Particulars.	N.S.W.	Vic.	S. Aust.	W. Aust.	Total.
Shipments	10,791	20,221	19,792	2,562	53,366
Local sales	22,767	16,148	5,726	4,892	49,533
Stocks on hand	..	..	349	..	349
Adjustment of stocks	156	..	..	75	231
Total	33,714	36,369	25,867	7,529	103,479

1918–19. (In thousands of bushels.)

Particulars.	N.S.W.	Vic.	S. Aust.	W. Aust.	Total.
Shipments	555	9,785	16,239	5,495	32,074
Local sales	13,363	13,552	4,080	2,241	33,236
Stocks on hand	..	..	153	..	153
Total	13,918	23,337	20,472	7,736	65,463

1919–20. (In thousands of bushels.)

Particulars.	N.S.W.	Vic.	S. Aust.	W. Aust.	Total.
Shipments	..	1,556	9,805	4,758	16,119
Local sales	457	10,812	2,780	4,985	19,034
Stocks on hand	..	..	109	..	109
Total	457	12,368	12,694	9,743	35,262

1920–21. (In thousands of bushels.)

Particulars.	N.S.W.	Vic.	S. Aust.	W. Aust.	Total.
Shipments	26,718	19,785	19,056	4,590	70,149
Local sales	8,646	6,433	2,191	2,237	19,507
Stocks on hand	15,618	12,345	10,586	3,648	42,197
Total	50,982	38,563	31,833	10,475	131,853

The value realized to 1st August, 1921 (all pools) is as follows :—

TOTAL VALUE OF POOLED WHEAT SOLD IN EACH STATE TO 1st AUGUST, 1921.

Particulars.	N.S.W.	Victoria.	S. Aust.	W. Aust.	Total.
	£	£	£	£	£
Oversea shipments and *Australian Wheat* Board flour contracts	26,989,000	41,218,000	35,808,000	12,555,000	116,570,000
Local sales ..	22,380,000	19,861,000	7,574,000	6,053,000	55,868,000
Total shipments and local deliveries ..	49,309,000	61,079,000	43,382,000	18,608,000	172,438,000

Since the initiation of the "Pool," several sales of magnitude have been made, notably one of 3,000,000 tons to the British Wheat Commission, at a rate of 4s. 9d. per bushel f.o.b., equalling £26,600,000, which is the largest wheat transaction ever recorded, and another of 1,500,000 tons to the same purchaser for £15,400,000, at the rate of 5s. 6d. per bushel.

§ 5. Oats.

1. **Progress of Cultivation.**—Oats came next in importance to wheat amongst the grain crops cultivated last season, but while wheat grown for grain accounted for 48 per cent., oats represented only 8 per cent. of the area under crop in the Commonwealth. The progress of cultivation of oats since 1860 is shewn in the table hereunder, and more fully in the graphs hereinafter :—

CULTIVATION OF OATS, 1860–1 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860–1	6,535	86,337	7	2,273	507	30,303	..	125,962
1870–1	10,683	149,309	122	6,188	2,095	30,946	..	199,343
1880–1	17,923	134,089	116	4,355	1,319	19,853	..	177,655
1890–1	14,102	221,048	411	12,475	1,934	20,740	..	270,710
1900–1	29,383	362,689	385	27,988	4,790	45,073	..	470,308
1910–11	77,991	392,681	2,537	77,674	61,918	63,887	..	676,688
1915–16	58,449	353,932	339	126,529	104,086	78,212	97	721,644
1916–17	67,003	441,598	6,564	151,609	122,220	55,028	108	844,130
1917–18	82,512	293,214	3,002	106,556	95,666	34,771	79	615,800
1918–19	86,421	342,867	298	160,823	141,459	36,231	53	768,152
1919–20	76,117	559,547	363	192,153	191,931	48,185	224	1,068,520

2. **Total Yield.**—The total oat crop of the several States for the same period is furnished in the following table :—

COMMONWEALTH OAT CROP, 1860–1 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1860–1	98,814	2,633,693	91	52,989	11,925	926,418	..	3,723,930
1870–1	119,365	2,237,010	1,586	88,383	39,974	691,250	..	3,177,568
1880–1	356,121	2,362,425	2,081	50,070	21,104	439,446	..	3,231,247
1890–1	256,659	4,919,325	8,967	116,229	38,791	519,395	..	5,859,366
1900–1	593,548	9,582,332	7,855	366,229	88,433	1,406,913	..	12,043,310
1910–11	1,702,706	9,699,127	50,469	1,136,618	776,233	2,063,303	..	15,428,456
1915–16	1,344,138	9,328,894	2,454	2,134,374	1,538,092	2,189,467	1,560	16,538,979
1916–17	1,083,030	8,289,289	108,664	1,839,541	1,689,352	1,006,183	1,950	14,018,009
1917–18	1,452,144	6,141,287	44,688	1,248,529	908,592	589,224	2,967	10,387,431
1918–19	1,272,411	5,274,984	3,632	1,540,603	1,499,689	848,420	1,341	10,441,080
1919–20	586,758	6,603,067	2,871	1,634,239	2,486,918	1,242,258	3,255	12,559,366

The principal oat-growing State of the Commonwealth is Victoria. During the past five seasons it has produced 56 per cent. of the total quantity of oats grown in the Commonwealth; South Australia, Western Australia, Tasmania, and New South Wales come next in order of importance. In New South Wales and Tasmania, the highest production of oats for any season was that of 1909–10, while Victoria experienced its maximum yield in 1903–4, South Australia in 1915–16, Queensland in 1916–17, and Western Australia in 1912–13. For the Commonwealth as a whole, the record yield was that of 17,541,210 bushels in the season 1903–4, while the yields of 16,538,979 and 16,248,857 for 1915–16 and 1908–9 respectively rank second and third.

3. **Average Yield.**—The average yield per acre of the oat crop of the Commonwealth varies considerably in the different States, being highest in Tasmania and lowest in South Australia. Particulars as to average yield in each of the last five seasons, and for the decennium 1910–20, are given in the succeeding table:—

AVERAGE YIELD OF OATS PER ACRE, 1915–16 TO 1919–20.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1915–16	23.00	26.36	7.24	16.87	14.78	27.99	16.08	22.92
1916–17	16.16	18.77	16.55	12.13	13.82	18.28	18.06	16.61
1917–18	17.60	20.94	14.89	11.72	9.50	16.95	37.56	16.87
1918–19	14.72	15.38	12.19	9.58	10.60	23.42	25.30	13.59
1919–20	7.71	11.80	7.91	8.50	12.96	25.78	14.53	11.75
Average for 10 seasons 1910–20	(a)16.79	17.18	16.22	10.57	12.23	26.50	(b)18.26	15.94

(a) Including Federal Territory. (b) Average for nine seasons.

The smallest average yield per acre ever recorded for the Commonwealth was that experienced in the abnormally dry season 1914–15, viz., 5.60 bushels, while the largest in the past ten years was that of the season 1915–16, amounting to 22.92 bushels per acre.

4. **Relation to Population.**—The State in which oat production occupies the most important position in relation to population is Tasmania, the yield for that State representing about 5.72 bushels per head during the last five years under review, as compared with 2.56 bushels per head for the Commonwealth as a whole. Particulars for the seasons 1915–16 to 1919–20 are furnished in the succeeding table:—

OAT PRODUCTION PER 1,000 OF POPULATION, 1915–16 TO 1919–20.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1915–16	719	6,574	4	4,868	4,837	10,892	820	3,353
1916–17	583	5,926	162	4,251	5,471	5,033	877	2,875
1917–18	768	4,352	66	2,862	2,936	2,900	1,410	2,105
1918–19	659	3,687	5	3,457	4,785	4,062	601	2,076
1919–20	293	4,414	4	3,491	7,498	5,731	1,696	2,394

5. **Value of Oat Crop.**—The estimated value of the oat crop of the several States of the Commonwealth for the season 1919–20 is as follows:—

VALUE OF OAT CROP, (a) 1919–20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
Aggregate value..	£190,700	£1,925,895	£861	£408,560	£572,509	£341,620	£1,060	£3,441,205
Value per acre ..	£2/10/1	£3/8/10	£2/7/5	£2/2/8	£2/19/8	£7/1/10	£4/14/8	£3/4/5

(a) Exclusive of the value of straw.

6. **Imports and Exports.**—The production of oats in the Commonwealth has not yet reached such a stage as to admit of a regular export trade in this cereal; in fact in certain years the imports have exceeded the exports, notably in 1903, 1906, 1908, 1910, and in each of the four years prior to 1916–17. The quantities and values of oats imported into and exported from the Commonwealth during the years 1915–16 to 1919–20 are given hereunder:—

COMMONWEALTH IMPORT AND EXPORT OF OATS, 1915-16 TO 1919-20.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1915–16 ..	2,473,412	501,755	582,055	85,119	−1,891,357	−416,636
1916–17 ..	3,700	635	670,985	97,879	667,285	97,244
1917–18 ..	838	219	368,113	53,809	367,275	53,590
1918–19 ..	41,728	9,713	149,413	35,326	107,685	25,613
1919–20 ..	146,700	41,759	290,323	83,175	143,623	41,416

NOTE.—The minus sign (−) signifies net imports.

The principal countries from which the Commonwealth imports of oats have been obtained are the Dominion of New Zealand, Chile, Japan, and the United States of America, while the principal countries to which oats were exported during the period under review were New Zealand, Java and the United Kingdom.

7. **Oatmeal, etc.**—Importations of oatmeal, etc., into the Commonwealth take place principally from the United Kingdom, the United States, and New Zealand. The total importations of oatmeal, wheatmeal, and rolled oats during 1919–20 amounted to 237,490 lbs., and represented a value of £6,029, while the exports amounted to 2,312,225 lbs., valued at £32,347, principally to India, New Zealand, Java and Papua.

8. **Comparison with Other Countries.**—A comparison of the Australian production of oats with that of the leading oat-producing countries of the world is furnished in the following table:—

PRODUCTION OF OATS IN VARIOUS COUNTRIES, 1919.

Country.	Quantity of Oats Produced.	Country.	Quantity of Oats Produced.	Country.	Quantity of Oats Produced.
	Bushels.		Bushels.		Bushels.
United States ..	1,210,361,000	Sweden ..	62,825,000	Norway ..	12,391,000
Russia in Europe (1916) ..	674,593,000	Argentine Rep.	46,849,000	Rumania ..	12,131,000
Canada ..	343,825,000	Denmark ..	38,994,000	Algeria ..	8,695,000
Germany ..	253,951,000	Czecho-Slovakia ..	37,814,000	Japan ..	8,140,000
United Kingdom	203,960,000	Italy ..	28,482,000	New Zealand	6,968,000
France ..	138,057,000	Spain ..	27,000,000	Union of South Africa ..	6,270,000
Russia in Asia (1915) ..	82,243,000	Belgium ..	22,082,000	Bulgaria ..	6,060,000
Hungary (1915) ..	78,449,000	Netherlands	19,884,000	Tunis ..	2,826,000
Austria (1916)	76,475,000	Australia ..	12,559,000	Switzerland	2,272,000

9. *Comparison of Yields.*—*The average yield per acre of oats in Australia is a very low one compared with the results obtained in other countries, where the cultivation of this cereal is more extensively carried on. Arranging the countries contained in the foregoing table according to the magnitude of the average yield of oats for the years specified, the results are as follows :—*

YIELD OF OATS PER ACRE, VARIOUS COUNTRIES, 1919.

Country.	Average per Acre.	Country.	Average per Acre.	Country.	Average per Acre.
	Bushels.		Bushels.		Bushels.
Netherlands ..	54.0	Hungary (1915)	29.5	Rumania ..	20.3
Denmark ..	40.6	United States ..	28.5	France ..	20.3
Belgium ..	40.2	Czecho-Slovakia	27.6	Bulgaria ..	20.1
United Kingdom	39.9	Union of South Africa (1917)	26.9	Russia in Europe (1916) ..	19.4
Switzerland ..	39.8	Italy ..	25.2	Spain ..	16.9
New Zealand ..	38.8	Canada ..	23.0	Russia in Asia (1915) ..	13.4
Japan ..	37.9	Tunis ..	22.3	**Australia** ..	**11.8**
Norway ..	36.2	Austria (1916) ..	21.0		
Sweden ..	35.7	Argentine Rep.	20.4		
Germany ..	34.4				

10. **Price of Oats.**—The average wholesale prices of oats in the markets of the several capitals for the year 1919 are given in the following table :—

AVERAGE WHOLESALE PRICE OF OATS PER BUSHEL, 1919.

Particulars.	Sydney (a)	Melbourne.	Brisbane.	Adelaide.	Perth.	Hobart.
	s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
Average price per bushel ..	6 4	5 1½	6 1	4 4	4 2¾	4 11½

(a) Year ended 30th June, 1920.

§ 6. Maize.

1. *States Growing Maize.*—The only States in which maize is at all extensively grown for grain are those of New South Wales and Queensland, the area so cropped in these two States during the season 1919–20 being 241,769 acres, or 91 per cent. of the total for the Commonwealth. Of the balance, Victoria contributed 23,474 acres, South Australia 165 acres, Western Australia 11 acres, and the Northern Territory 50 acres. The climate of Tasmania prevents the growing of maize for grain in that State. In South Australia, prior to 1903, particulars concerning maize had not been specially asked for on the form used in the collection of agricultural statistics. In all the States, maize is grown to a greater or less extent as green forage, particularly in connexion with the dairying industry.

2. *Area under Maize.*—The area devoted to the growing of maize for grain in each State, from 1880 onwards, is given in the following table, and the actual fluctuations from year to year are shewn more fully on the graph hereinafter.

The total area under maize in the Commonwealth exceeded 350,000 acres for the first time in the season 1909–10, and although it fluctuated somewhat during the succeeding eight years, it may be considered to have remained at about that figure. During the last two years, however, the area under maize has diminished considerably, the 1919–20 area exhibiting a deficit of nearly 100,000 acres on the 1909–10 total. This decline has occurred principally in New South Wales.

AREA UNDER MAIZE, 1880–1 TO 1919–20.

Season.		N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	N. Ter.	F. Ter.	C'wealth.
		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1880–1	..	127,190	1,769	44,109	..	32	..	..	173,106
1890–1	..	191,152	10,357	99,400	..	81	..	..	300,990
1900–1	..	206,051	9,389	127,974	..	91	..	..	343,505
1910–11	..	213,217	20,151	180,862	(a)619	46	19	..	414,914
1915–16	..	154,119	22,258	146,474	702	28	45	11	323,637
1916–17	..	155,373	23,076	181,405	117	51	45	5	360,072
1917–18	..	145,733	20,987	165,124	70	97	25	21	332,057
1918–19	..	114,582	22,559	149,505	112	30	15	..	286,812
1919–20	..	136,509	23,474	105,260	165	11	50	..	265,469

(a) Particulars for years prior to 1907–8 not available.

3. **Total Yield.**—The average yield for the season 1919–20 was the lowest since the disastrous drought year of 1902. The 1910–11 crop was a record one, and exceeded 13,000,000 bushels, while the average annual production of maize during the last decade was 8,580,904 bushels. Particulars concerning the yield from 1880 onwards are given hereunder :—

MAIZE CROP, 1880–1 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W.Aust.	N. Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1880–1	4,518,897	49,299	1,409,607	..	896	..	..	5,978,699
1890–1	5,713,205	574,083	2,373,803	..	1,526	..	..	8,662,617
1900–1	6,292,745	604,180	2,456,647	..	1,399	..	..	9,354,971
1910–11	7,594,130	982,103	4,460,306	(a)6,375	718	449	..	13,044,081
1915–16	3,773,405	999,886	2,003,463	15,837	273	450	195	6,793,509
1916–17	4,333,430	1,172,330	3,018,934	993	949	450	50	8,527,136
1917–18	3,499,529	1,152,787	4,188,586	796	701	432	429	8,843,280
1918–19	2,091,021	711,679	4,105,974	1,756	623	200	..	6,912,153
1919–20	4,052,025	878,922	1,830,664	1,810	84	500	..	6,764,005

(a) Particulars for years prior to 1907–8 not available.

4. **Average Yield.**—In the following table particulars are given of the average yield per acre of the maize crops of the several States for the seasons 1915–16 to 1919–20, and also for the decennium 1910–20 :—

AVERAGE YIELD OF MAIZE PER ACRE, 1915–16 TO 1919–20.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	N. Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1915–16	24.48	44.92	13.68	22.56	9.75	10.00	17.73	20.99
1916–17	27.89	50.80	16.64	8.49	18.61	10.00	10.00	23.68
1917–18	24.01	54.93	25.37	11.37	7.23	17.28	20.43	26.63
1918–19	18.26	31.55	27.46	15.68	15.97	13.33	..	24.10
1919–20	29.68	37.44	17.39	10.97	7.64	10.00	..	25.48
Average for 10 seasons 1910–20	a27.23	44.33	22.13	13.75	12.90	17.50	b14.41	25.93

(a) Including Federal Territory. (b) Average for nine seasons.

The extraordinarily high average yield obtained in Victoria is due, in large measure, to the fact that the area under maize in that State is comparatively small and is situated in districts that are peculiarly suited to the production of this grain. The average yield in New South Wales is appreciably higher than that obtained in Queensland.

5. Value of Maize Crop.—The value of the Commonwealth maize crop for the season 1919–20 has been estimated at £2,861,951, made up as follows :—

VALUE OF MAIZE CROP, 1919–20.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	N. Ter.	C'wealth.
	£	£	£	£	£	£	£
Aggregate value ..	1,722,110	406,501	732,266	905	49	120	2,861,951
Value per acre ..	£12/12/4	£17/6/4	£6/19/2	£5/9/8	£4/9/1	£2/8/0	£10/15/7

6. Relation to Population.—During the past ten seasons the Commonwealth production of maize has ranged between 1.29 bushels per head of population in 1919–20 and 3 bushels per head in 1910–11. The production in Queensland, the State in which the maize yield per head of population is highest, ranged during the same period between 2½ bushels per head in 1919–20 and 7½ bushels per head in 1910–11. Details for the several States during the past five seasons are as follows :—

MAIZE PRODUCTION PER 1,000 OF POPULATION, 1915–16 TO 1919–20.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	N. Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1915–16..	2,017	705	2,952	36	1	99	107	1,377
1916–17..	2,332	835	4,509	2	3	94	32	1,749
1917–18..	1,851	817	6,179	2	2	88	204	1,792
1918–19..	1,084	497	5,913	4	2	42	..	1,374
1919–20..	2,023	588	2,524	4	..	106	..	1,289

7. Australian and Foreign Maize Production.—The following table gives the production of maize in Australia and in the leading maize-producing countries of the world. The figures shew that the United States of America was responsible for over 73 per cent. of the total production.

PRODUCTION OF MAIZE IN VARIOUS COUNTRIES, 1919.

Country.	Production of Maize.	Country.	Production of Maize.
	Bushels.		Bushels.
United States	2,828,760,000	Canada	16,940,000
Argentine Republic ..	241,375,000	Serbia (1915)	11,632,800
Hungary (1915)	175,025,170	France	10,985,000
Rumania	94,600,000	Philippine Islands (1918)..	10,926,000
India (British) (1918) ..	89,844,000	Russia in Asia (1913) ..	10,765,360
Italy	80,101,000	Bulgaria (1918)	8,144,000
Mexico (1918)	73,660,000	Australia	6,784,000
Russia in Europe (1917) ..	67,137,000	Austria (1916)	5,702,000
Egypt (1917)	63,758,000	Portugal (1917)	5,353,000
Union of South Africa ..	34,452,000	Japan (1918)	3,756,000
Spain	23,844,000	Uruguay	2,597,000

8. Comparison of Yields.—The average yield per acre of maize in the Commonwealth during 1919 was 25.5 bushels, and may be regarded as highly satisfactory when compared with that of other maize-producing countries. Canada, Egypt, Argentine Republic,

Hungary, United States and Japan are the only countries shewing a higher average. The remaining countries shewn in the following table had average yields per acre ranging from 10.1 to 21.6 bushels.

AVERAGE YIELD OF MAIZE PER ACRE IN VARIOUS COUNTRIES, 1919.

Country.	Average Yield per Acre.	Country.	Average Yield per Acre.
	Bushels.		Bushels.
Canada	64.0	Mexico (1918)	19.1
Egypt (1917)	32.5	Russia in Europe (1916) ..	19.0
Argentine Republic ..	29.5	Serbia (1913)	15.9
Hungary (1915)	28.3	Austria (1916)	15.8
United States of America ..	27.7	France	14.8
Japan (1918)	26.3	India (1918)	14.3
Australia (a)	25.5	Union of South Africa (1918) ..	11.7
Italy	21.6	Philippine Islands (1918) ..	10.6
Spain	20.2	Russia in Asia (1913) ..	10.1
Rumania	19.5		

(a) Average yield for 10 years, 25.9 bushels.

9. **Oversea Imports and Exports.**—The Commonwealth oversea trade in maize is practically insignificant, any importation or exportation depending solely on the success or failure of the Australian crop. During the past five years owing to droughty conditions the total net import amounted to nearly 4,000,000 bushels. Details of imports and exports for the years 1915–16 to 1919–20 are as follows:—

COMMONWEALTH IMPORTS AND EXPORTS OF MAIZE, 1915-16 TO 1919-20.

Year.	Imports.		Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1915–16	3,432,571	712,650	4,237	1,088	3,428,334	711,562
1916–17	41,952	8,162	50,296	11,894	– 8,344	– 3,732
1917–18	3,226	770	128,988	29,069	– 125,762	– 28,299
1918–19	255,605	73,774	84,120	20,804	171,485	52,970
1919–20	494,278	158,361	6,632	3,001	487,646	155,360

NOTE.—The minus sign (–) signifies net exports.

The principal countries to which maize has been exported from the Commonwealth are New Zealand and the Pacific Islands, while the principal countries from which importations have taken place are South Africa, Java, and the Pacific Islands.

10. **Prepared Maize.**—A moderate quantity of corn-flour is imported annually into the Commonwealth, the principal countries of supply being the United Kingdom and the United States. During the year 1919–20 these importations amounted to 320,803 lbs., and represented a value of £6,572. The exports of this commodity have been steadily increasing in dimensions during recent years, the amount exported during 1919–20 amounting to 401,878 lbs., valued at £10,086.

11. **Price of Maize.**—The average wholesale price of maize in the Sydney market is given in the following table for each of the last five years:—

AVERAGE SYDNEY PRICE OF MAIZE PER BUSHEL, 1915-16 TO 1919-20.

Particulars.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	s. d.	s. d.	s. d.	s. d.	s. d.
Average price per bushel ..	6 2	3 8	4 8½	6 11¼	8 11

7. Barley.

1. **Area under Barley.**—The area devoted to barley in the Commonwealth has fluctuated very considerably, though with a tendency to increase during the past few years. Originally the principal barley-growing State was Victoria, but for the past seven seasons South Australia has attained the lead in regard to acreage, and for 1919–20 accounted for more than 59 per cent. of the Commonwealth area devoted to this crop; Victoria was next in importance with a percentage of nearly 32; the remaining 9 per cent. being represented by Western Australia, Tasmania, New South Wales, and Queensland, in the order named. The figures here given relate to the areas harvested for grain; only small areas are cropped for hay, while more considerable quantities are cut for green forage. These, however, are not included in this sub-section. The area under barley for grain in the several States from 1880 onwards is shown in the following table :—

COMMONWEALTH AREA UNDER BARLEY, 1880–1 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1880–1 ..	8,056	68,630	1,499	13,074	6,363	8,297	105,919
1890–1 ..	4,937	87,751	584	14,472	5,322	4,376	117,442
1900–1 ..	9,435	58,853	7,533	15,352	2,536	4,502	98,211
1910–11 ..	7,082	52,687	5,578	34,473	3,369	5,235	108,424
1915–16 ..	6,369	61,400	1,367	84,900	10,069	5,409	169,514
1916–17 ..	5,195	93,015	12,674	103,627	11,105	4,637	230,253
1917–18 ..	6,370	84,931	7,702	95,654	5,028	5,185	204,870
1918–19 ..	7,980	100,198	1,316	130,357	7,982	7,036	254,869
1919–20 ..	5,354	85,323	3,275	157,897	9,167	6,293	267,309

2. **Total Yield.**—Despite a greater acreage in South Australia, Victoria, with its higher average yield per acre, produced the greatest quantity of barley during the past ten years. For the past two years, however, South Australian production exceeded that of Victoria, the excess in 1919–20 amounting to 920,282 bushels. Particulars concerning the yields of the several States from 1880 onwards are as follows :—

COMMONWEALTH BARLEY CROP, 1880–1 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1880–1 ..	163,395	1,068,830	31,433	151,886	89,082	169,156	1,673,782
1890–1 ..	81,383	1,571,599	12,673	175,583	85,451	99,842	2,026,531
1900–1 ..	114,228	1,215,478	127,144	211,102	29,189	116,911	1,814,052
1910–11 ..	82,005	1,340,387	83,621	544,471	33,566	142,318	2,226,368
1915–16 ..	114,846	1,734,511	8,130	1,697,670	130,870	115,523	3,801,550
1916–17 ..	73,370	1,799,784	250,167	1,734,420	134,055	88,696	4,080,492
1917–18 ..	97,824	1,970,650	143,574	1,651,036	35,761	98,013	3,996,858
1918–19 ..	86,313	2,028,635	8,824	2,417,349	81,451	141,149	4,763,721
1919–20 ..	38,692	1,528,654	34,892	2,448,936	116,037	120,516	4,287,927

3. Malting and other Barley.—In recent years the statistics of all the States have distinguished between "malting" and "other" barley. Particulars for 1919–20 season are as follows :—

MALTING AND OTHER BARLEY, 1919–20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Malting barley ..	3,772	50,049	2,979	137,932	4,896	5,124	204,752
Other barley	1,582	35,274	296	19,965	4,271	1,169	62,557
Total ..	5,354	85,323	3,275	157,897	9,167	6,293	267,309
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
Malting barley ..	25,014	917,274	31,637	2,215,029	62,708	100,365	3,352,027
Other barley	13,878	611,380	3,255	233,907	53,329	20,151	935,900
Total ..	38,892	1,528,654	34,892	2,448,936	116,037	120,516	4,287,927

Taking the Commonwealth as a whole, over 76 per cent. of the area devoted to this grain in 1919–20 was cropped for malting barley. The proportion varies considerably in the several States.

4. Total Acreage and Yield.—The following table sets out the total acreage and yield of malting and other barley in the Commonwealth as a whole during the past five seasons :—

AREA AND YIELD, MALTING AND OTHER BARLEY, COMMONWEALTH, 1915–16 TO 1919–20.

Season.	Acres.			Bushels.			Average Bushels per Acre.		
	Malting.	Other.	Total.	Malting.	Other.	Total.	Malting.	Other.	Total.
1915–16 ..	106,217	63,297	169,514	2,365,126	1,436,424	3,801,550	22.27	22.69	22.43
1916–17 ..	141,846	88,407	230,253	2,505,118	1,575,374	4,080,492	17.66	17.82	17.72
1917–18 ..	136,785	68,085	204,870	2,602,449	1,394,409	3,996,858	19.03	20.48	19.51
1918–19 ..	179,186	75,683	254,869	3,419,863	1,343,858	4,763,721	19.09	17.76	18.69
1919–20 ..	204,752	62,557	267,309	3,352,027	935,900	4,287,927	16.37	14.96	16.04
Average 10 seasons 1910–20	130,687	60,244	190,931	2,361,522	1,070,698	3,432,220	18.07	17.77	17.98

For the past ten seasons the area and production of malting barley have represented approximately twice the corresponding figures for other barley. The average yield per acre differs very little in respect of the two classes of barley, malting obtaining a slight average advantage of 0.30 bushels per acre during the last ten years.

5. **Value of Barley Crop.**—The estimated value of the total barley crop of the Commonwealth for the seasons 1915–16 to 1919–20 was £655,917, £734,154, £834,075, £1,221,863, and £1,360,411 in the order named. The extent to which the several States have contributed to the latter total is shown in the following table:—

VALUE OF BARLEY CROP,(a) 1919–20.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Total value ..	£13,460	£537,582	£9,305	£725,557	£39,525	£34,982	£1,360,411
Value per acre ..	£2/10/3	£6/6/0	£2/16/10	£4/11/11	£4/6/3	£5/11/2	£5/1/9

(a) Exclusive of the value of straw.

6. **Relation to Population.**—During the last five seasons the quantity of barley produced in the Commonwealth has averaged a little over three-quarters of a bushel per head of population. For the season 1919–20 the production ranged from 5¼ bushels per head in South Australia to 0.02 pounds per head in New South Wales. Details for the years 1915–16 to 1919–20 are as follows:—

BARLEY PRODUCTION PER 1,000 OF POPULATION, 1915–16 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1915–16	61	1,222	12	3,872	412	575	771
1916–17	39	1,287	374	4,008	434	444	837
1917–18	52	1,397	212	3,785	116	482	810
1918–19	45	1,418	13	5,424	260	676	947
1919–20	19	1,022	48	5,231	350	556	817

7. **Commonwealth Imports and Exports.**—The Commonwealth oversea trade in barley is not large, though it shews signs of extension during recent years. Owing to the severe drought during 1914–15, the barley crop for that year was very low, and a fairly heavy importation of barley was necessary, the bulk of which came from the United States. During the next five years, however, the Commonwealth exported 1,976,102 bushels of barley valued at £568,637, principally to New Zealand, United Kingdom, and Japan. Particulars of the Commonwealth overseas imports and exports of barley for the years 1915–16 to 1919–20 are contained in the following table:—

COMMONWEALTH IMPORTS AND EXPORTS OF BARLEY, 1915–16 TO 1919–20.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1915–16	147,144	27,387	185,122	36,661	37,978	9,274
1916–17	58	9	256,804	52,891	256,746	52,882
1917–18	34	8	282,252	64,703	282,218	64,695
1918–19	456	203	176,478	49,573	176,022	49,370
1919–20	438	236	1,075,446	364,809	1,075,008	364,573

NOTE.—The minus sign (—) signifies net imports.

From time to time an export trade in Australian pearl and scotch barley has been carried on, the total exports for 1919–20 reaching 2,513,758 lbs., valued at £29,124. The trade for the year was mainly with the South African Union, New Zealand, and Japan.

8. **Commonwealth Imports and Exports of Malt.**—In pre-war times the importations of malt into the Commonwealth were fairly extensive, the supply being obtained principally from the United Kingdom. Since the outbreak of the war in 1914, however, imports have continuously declined, and the quantities exported have practically remained negligible, with the exception of 1917–18, when 117,075 bushels, valued at £47,626, were exported mainly to Japan, South Africa, and the Philippines. Details of imports and exports for the years 1915–16 to 1919–20 are given hereunder:—

COMMONWEALTH IMPORTS AND EXPORTS OF MALT, 1915–16 TO 1919–20.

Year.	Imports.		Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1915–16	23,910	9,596	30	13	23,880	9,583
1916–17	7,452	4,196	73	35	7,379	4,161
1917–18	35	106	117,075	47,626	−117,040	−47,520
1918–19	..	1	..	..	..	1
1919–20	..	..	..	..	..	..

NOTE.—The minus sign (−) signifies net exports.

9. **Comparison with other Countries.**—In comparison with the barley production of other countries of the world, that of Australia appears very small indeed. Particulars for some of the leading countries for the year 1919 are as follows, the Australian figures being added for the sake of comparison:—

PRODUCTION OF BARLEY IN VARIOUS COUNTRIES, 1919.

Country.	Production of Barley.	Country.	Production of Barley.
	Bushels.		Bushels.
Russia in Europe (1916) ..	336,213,000	Sweden	12,372,000
United States	160,681,000	Rumania	11,504,000
British India (1918) ..	150,555,000	Argentine Republic ..	10,579,000
Japan	87,798,000	Bulgaria	9,954,000
Germany	84,209,000	Egypt (1918)	9,475,000
Spain	78,515,000	Italy	7,992,000
United Kingdom ..	57,704,000	Tunis	5,730,000
Hungary (1915) ..	54,466,706	Norway	5,062,000
Canada	54,134,000	Australia	4,288,000
Austria (1916)	37,469,000	Chile	3,855,000
Russia in Asia (1915) ..	35,452,500	Belgium	3,471,000
Algeria	27,243,000	Netherlands	2,580,000
Denmark	23,530,000	Serbia (1916)	2,181,150
France..	22,674,000	Union of South Africa ..	1,113,000
Czecho-Slovakia ..	20,700,000		

10. **Average Yield of Barley per Acre in various Countries.**—The following table shows the average yield of barley per acre in various countries of the world, ranging from 46 bushels in Belgium to 6 bushels in Tunis :—

AVERAGE YIELD OF BARLEY PER ACRE IN VARIOUS COUNTRIES, 1919.

Country.	Average yield per Acre.	Country.	Average yield per Acre.
	Bushels.		Bushels.
Belgium	46.2	Canada	20.5
Netherlands	44.1	Rumania	19.6
Denmark	41.4	Hungary (1915)	19.3
Chile	39.3	Spain	18.5
New Zealand	35.6	India (1918)	18.1
Norway	32.4	Argentine Republic ..	17.2
United Kingdom	30.9	Union of South Africa (1917)	17.0
Japan	30.0	France	16.9
Sweden	30.0	Russia in Asia (1916) ..	16.9
Egypt (1918)	28.2	Italy	16.7
Germany	27.0	**Australia**	**16.0**
Czecho-Slovakia	23.2	Russia in Europe (1916) ..	15.3
United States	21.7	Algeria	10.3
Bulgaria	21.0	Tunis	5.9

11. **Average Yield.**—The average yield per acre of barley varies considerably in the different States, being as a rule highest in Tasmania and Victoria, and lowest in Western Australia. Details for each State during the past five seasons, and for the decennium 1910–20, are given in the following table :—

AVERAGE YIELD PER ACRE OF BARLEY, 1915–16 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1915–16	18.03	28.25	5.95	20.00	13.00	21.36	22.43
1916–17	14.12	19.35	19.74	16.74	12.07	19.13	17.72
1917–18	15.36	23.20	18.64	17.26	7.11	18.90	19.51
1918–19	10.82	20.25	6.71	16.54	10.20	20.06	18.69
1919–20	7.26	17.92	10.65	15.51	12.66	19.15	16.04
Average for 10 seasons 1910–20	13.79	20.82	15.48	16.37	11.47	22.69	17.98

12. **Price of Barley.**—The average price of barley in the Melbourne market during each of the past five years is given in the following table :—

AVERAGE MELBOURNE PRICE OF BARLEY PER BUSHEL, 1915 TO 1919.

Particulars.	1915.	1916.	1917.	1918.	1919.
	s. d.	s. d.	s. d.	s. d.	s. d.
Malting barley	5 4¾	4 4¼	4 4½	5 9	5 9¾
Cape barley	4 4¾	3 1⅛	3 1½	4 0	4 6⅛

§ 8. Other Grain and Pulse Crops.

In addition to the grain crops already specified, the only grain and pulse crops at all extensively grown in the Commonwealth are beans, peas, and rye. The total area under the two former crops for the season 1919–20 was 39,553 acres, giving a yield of 520,919 bushels, or an average of 13.17 bushels per acre, being less than the average yield for the decennium ended 1919–20, which was 16.32 bushels per acre. The States in which the greatest area is devoted to beans and peas are Tasmania, Victoria and South Australia. The total area under rye in the Commonwealth during the season 1919–20 was 3,663 acres, yielding 32,472 bushels, and giving an average of 8.86 bushels per acre. This was below the average for the past ten seasons, which was 11.08 bushels per acre. Over 35 per cent. of the rye grown during the season was produced in New South Wales and 26 per cent. in Victoria. In addition to these grain crops a small area of rice has for some years been cultivated in Queensland and the Northern Territory. The results obtained, however, have not up to the present been very satisfactory. Should rice-growing ever be seriously taken up in Australia, it is probable that large tracts of country in the northern parts of Queensland and Western Australia and in the Northern Territory will be found well suited to its cultivation.

§ 9. Potatoes.

1. **Area.**—The principal potato-growing State of the Commonwealth as regards area is Victoria, Tasmania (for some years prior to 1909–10) usually ranking second, and New South Wales third. *The relative positions of the two latter States were, however,* reversed during the five seasons ended 1913–14, but Tasmania again took the lead over New South Wales in the last six seasons ended 1919–20.

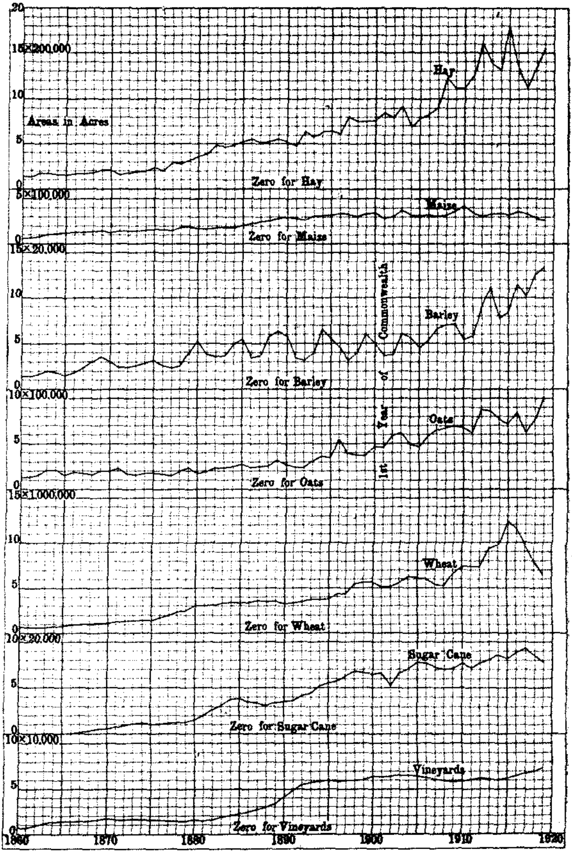
The area under potatoes in each State from 1890 onwards is given hereunder :—

COMMONWEALTH AREA UNDER POTATOES, 1890–1 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1890–1 ..	19,406	53,818	6,270	6,626	511	20,133	..	106,764
1900–1 ..	29,408	38,477	11,060	6,628	1,794	23,068	..	110,435
1910–11 ..	44,452	62,904	8,326	7,812	1,791	26,230	..	151,515
1915–16 ..	19,582	56,910	5,796	4,341	4,866	29,491	7	120,993
1916–17 ..	22,437	73,618	8,908	4,737	5,838	34,345	12	149,895
1917–18 ..	22,558	66,966	10,738	4,164	4,484	27,309	22	136,241
1918–19 ..	20,877	51,620	6,434	3,275	3,936	25,023	2	(a) 111,169
1919–20 ..	20,043	53,918	4,432	3,411	3,585	28,511	7	113,907

(a) Includes 2 acres in Northern Territory.

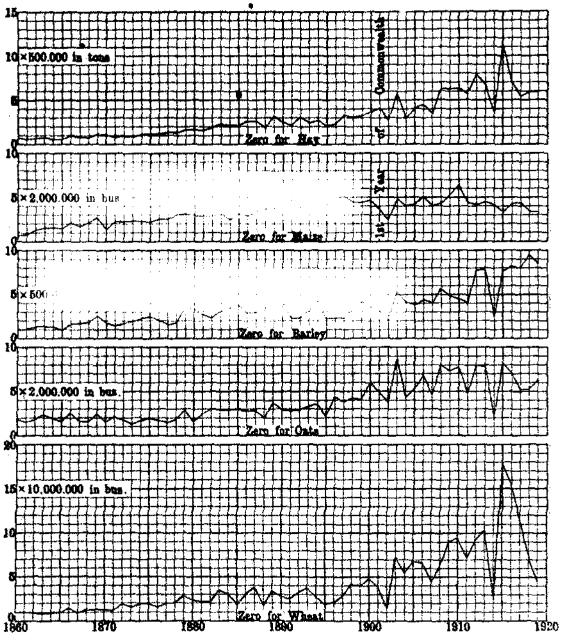
GRAPHS SHEWING THE AREA UNDER THE PRINCIPAL CROPS IN THE COMMONWEALTH FROM 1860-1 TO 1919-20.



(See pages—for wheat, 252; oats, 262; maize, 266; barley, 269; hay, 279; sugar-cane, 283; and vineyards, 287.)

EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year, while the vertical height represents a number of acres, varying with the nature of the crop in accordance with the scale given on the left-hand of the diagram. The height of each graph above the base line denotes, for the crop to which it relates, the total area under cultivation in the Commonwealth during the successive seasons.

GRAPHS SHEWING THE PRODUCTION OF THE PRINCIPAL CROPS IN THE COMMONWEALTH FROM 1860-1 TO 1919-20.



(See pages—for wheat, 253; oats, 262; maize, 266; barley, 269; and hay, 280.)

EXPLANATION OF GRAPHS.—In this diagram a separate base line is provided for each of the crops dealt with. In each instance the base of a small square represents an interval of one year, the vertical height of such square representing in the case of wheat 10,000,000 bushels; oats, 2,000,000 bushels; barley, 500,000 bushels; maize, 2,000,000 bushels; and hay, 500,000 tons. The height of each graph above its base line denotes the aggregate yield in the Commonwealth of that particular crop during the successive seasons.

2. **Total Yield.**—For the [illegible] 20, Victoria's [illegible] sented about 47½ per cent. of the total for the Commonwealth, Tasmania and New South Wales coming next in order with 25 and 17½ per cent. respectively. The total Commonwealth production for the season 1906–7 viz., 507,153 tons, was the highest ever attained, the yield which most nearly approached it being 449,383 tons in 1903–4. Details as to production in the several States during the period from 1890 onwards are as follows :—

COMMONWEALTH PRODUCTION OF POTATOES, 1890–1 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	F. Ter.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1890–1 ..	52,791	204,155	13,112	23,963	1,900	73,158	..	369,079
1900–1 ..	63,253	123,126	20,014	14,566	4,836	93,862	..	319,657
1910–11 ..	121,033	163,312	15,632	23,920	5,864	70,090	..	399,851
1915–16 ..	44,420	173,821	7,439	12,991	14,118	79,890	25	332,704
1916–17 ..	45,296	187,092	19,457	20,343	16,841	67,038	35	357,002
1917–18 ..	49,934	182,195	22,139	11,315	11,320	70,442	50	347,395
1918–19 ..	30,353	137,533	11,083	13,219	11,697	56,528	3	260,416
1919–20 ..	49,986	145,888	7,844	11,020	13,240	66,225	24	294,227

3. **Average Yield per Acre.**—*The suitability of the soil, climate, and general conditions for potato growing is evidenced by the satisfactory yields per acre which are generally obtained in Australia, except in the most northerly portions, the average yield during the past ten seasons being 2.57 tons per acre. The lowest average yield is that obtained in Queensland with an average of 1.83 tons for the same period.*

Particulars for each State for the seasons 1915–16 to 1919–20, and also for the past decennium, are given hereunder :—

AVERAGE YIELD OF POTATOES PER ACRE, 1915–16 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1915–16	2.27	3.05	1.28	2.99	2.90	2.71	3.57	2.75
1916–17	2.02	2.55	2.18	4.29	2.88	1.95	2.92	2.38
1917–18	2.21	2.72	2.06	2.72	2.52	2.58	2.27	2.55
1918–19	1.45	2.66	1.72	4.04	2.97	2.26	1.50	2.34
1919–20	2.49	2.71	1.77	3.23	3.69	2.32	3.43	2.58
Average for 10 seasons 1910–20	(a)2.21	2.77	1.83	3.21	3.03	2.52	(b)1.94	2.57

(a) Including Federal Territory. (b) Average for nine seasons.

4. **Value of Potato Crop.**—The estimated value of the potato crop of each State for the season 1919–20 is furnished in the following table, together with the value per acre :—

VALUE OF POTATO CROP, 1919–20.

Particulars.	N.S.W.	Victoria.	Q'land.	[illegible]	[illegible]	[illegible]	[illegible]	C'wealth.
Total value ..	[illegible]	£1,444,291	£183,942	£14[illegible]	[illegible]	[illegible]	[illegible]	£3,538,871
Value per acre	[illegible]	£28/[illegible]	£41/10/1	£42[illegible]	[illegible]	[illegible]	[illegible]	£31/1/4

5. **Relation to Population.**—The average production of potatoes per annum per head of the population of the Commonwealth for the past five seasons has been approximately 140 lbs. In Tasmania, where this crop is of far greater importance in relation to population than is the case in any other State, the production per head in 1906-7 was nearly a ton, while for the past five seasons it has averaged about 7½ cwt. Details for the seasons 1915-16 to 1919-20 are as follows :—

POTATO PRODUCTION PER 1,000 OF POPULATION, 1915-16 TO 1919-20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	F. Ter.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1915-16 ..	24	122	11	30	44	397	14	67
1916-17 ..	24	134	29	47	55	335	16	73
1917-18 ..	20	129	33	26	37	347	24	70
1918-19 ..	16	96	16	30	37	271	1	52
1919-20 ..	25	98	11	24	40	306	13	56

6. **Commonwealth Imports and Exports.**—Under normal conditions there is generally a fairly large export trade in potatoes carried on by the Commonwealth, principally with New Zealand, the Pacific Islands, and the Philippine Islands. On the other hand, when the recurrence of droughts causes a shortage in some of the States, large importations from New Zealand usually take place. The quantities and values of the Commonwealth oversea imports and exports of potatoes during the past five years are shewn in the following table :—

COMMONWEALTH IMPORTS AND EXPORTS OF POTATOES, 1915-16 TO 1919-20.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£
1915-16	17,596	149,488	1,208	13,110	– 16,388	– 136,378
1916-17	91	951	4,492	37,579	4,401	36,628
1917-18	38	367	3,348	23,203	3,310	22,836
1918-19	308	3,570	6,742	50,308	6,434	46,738
1919-20	2,614	41,391	1,455	22,954	– 1,159	– 18,437

NOTE.—The minus sign (–) signifies net imports.

§ 10. Other Root and Tuber Crops.

1. **Nature and Extent.**—Root crops, other than potatoes, are not extensively grown in Australia, the total area devoted to them for the season 1919-20 being only 15,927 acres. The principal of these crops are onions, mangolds, sugar beet, turnips, and "sweet potatoes" (*Batatas edulis*). Of these, onions, sugar beet, and mangolds are most largely grown in Victoria, turnips in Tasmania, and sweet potatoes in Queensland. The total area under onions in the Commonwealth during the season 1919-20 was 7,842 acres, giving a yield of 31,552 tons, and averaging 4.02 tons per acre. The area devoted in 1919-20 to root crops other than potatoes and onions, viz., 8,085 acres, yielded 50,506 tons, and gave an average of 6.25 tons per acre. The areas and yields here given are exclusive of the production of "market gardens," a reference to which will be made later.

2. **Commonwealth Imports and Exports.**—The only root crop, other than potatoes, in which any considerable oversea trade is carried on by the Commonwealth is that of onions. During the past five years 4,147 tons, valued at £53,603, were imported, principally from New Zealand, Japan, and the United States, while during the same period, the exports totalled 19,324 tons, valued at £188,682, and were shipped mainly to New Zealand, the Pacific Islands, the Philippines, and the United States.

§ 11. Hay.

1. *Nature and Extent.*—As already stated, the most important crop of the Commonwealth is that of wheat grown for grain. Next to this in importance is the hay crop, which for the five seasons ended 1919–20 averaged more than 18¾ per cent. of the area under crop in the Commonwealth, and for 1919–20 itself, 23¼ per cent. In most European countries the hay crop consists almost entirely of meadow and other grasses, whilst in Australia a very large proportion of the area under hay comprises cereal crops, mainly wheat and oats. A considerable quantity of lucerne hay is also made, particularly in New South Wales and Queensland. The area under hay of all kinds in the several States from 1860 onwards is given hereunder :—

AREA UNDER HAY, 1860–1 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860–1	46,584	90,921	276	55,818	6,626	31,837	..	..	232,062
1870–1	65,404	163,181	3,671	140,316	17,173	33,612	..	..	423,357
1880–1	131,153	249,656	12,022	272,567	19,563	31,615	..	..	716,576
1890–1	175,242	413,052	31,106	345,150	23,183	45,381	..	..	1,033,114
1900–1	466,236	502,105	42,497	341,330	104,254	61,541	..	..	1,517,963
1910–11	638,577	832,669	98,558	440,177	175,432	72,992	..	..	2,258,405
1915–16	1,107,228	1,330,455	55,174	709,831	290,036	103,216	140	1,691	3,597,771
1916–17	857,533	897,186	112,964	483,040	240,726	79,274	140	999	2,671,862
1917–18	619,614	748,808	96,431	407,011	265,999	74,107	14	1,030	2,212,914
1918–19	813,379	984,479	54,772	501,731	249,796	87,136	30	1,581	2,692,904
1919–20	938,471	1,116,998	48,843	590,835	327,498	102,908	100	1,671	3,127,324

It will be seen from this table that in all the States marked fluctuations occur in the area devoted to the hay crop from year to year. These fluctuations are due to various causes, the principal being the variations in the relative prices of grain and hay, and the favourableness or otherwise of the season for a grain crop. Thus, crops originally sown for grain are frequently cut for hay owing to the improved price of that commodity, or owing to the fact that the outlook for the due development of the grain is not satisfactory. On the other hand, improved grain prices or the prospect of a heavy yield will frequently cause crops originally intended for hay to be left for grain. The area under hay in the Commonwealth for the season 1915–16 was the highest on record, that for 1912–13 the next highest, while the 1919–20 acreage occupied third position.

2. *Kinds of Hay.*—Particulars concerning the kinds of crop cut for hay are furnished in the returns prepared by five of the States. In the case of Tasmania the bulk consists of oaten hay; full particulars, however, are not available for that State.

Details for the past five seasons are given in the following table :—

KINDS OF HAY GROWN, 1915–16 TO 1919–20.

Kind of Hay Crop.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	Acres.	Acres.	Acres.	Acres.	Acres.
NEW SOUTH WALES—					
Wheaten	878,881	633,438	434,908	612,771	716,770
Oaten	175,285	160,898	118,209	152,057	172,310
Barley	1,348	866	843	1,238	1,750
Lucerne	50,528	61,584	64,668	46,336	46,555
Other	1,186	747	986	977	1,086
Total ..	1,107,228	857,533	619,614	813,379	938,471

KINDS OF HAY GROWN, 1915–16 TO 1919–20—*continued.*

Kind of Hay Crop.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	Acres.	Acres.	Acres.	Acres.	Acres.
VICTORIA—					
Wheaten	333,449	195,532	192,478	274,320	417,221
Oaten	964,318	672,905	532,634	691,808	681,179
Lucerne, etc.	32,688	28,749	23,696	18,351	18,598
Total ..	1,330,455	897,186	748,808	984,479	1,116,998
QUEENSLAND—					
Wheaten	14,003	21,047	7,247	1,902	11,710
Oaten	6,377	30,041	10,901	1,803	2,488
Lucerne	32,288	55,928	73,347	48,264	29,348
Other	2,506	5,948	4,936	2,803	5,297
Total ..	55,174	112,964	96,431	54,772	48,843
SOUTH AUSTRALIA—					
Wheaten	476,423	323,633	292,803	358,068	450,371
Oaten	190,321	148,881	107,284	138,507	134,775
Lucerne	3,380	2,855	2,123	2,106	2,167
Other	39,707	7,671	4,801	3,050	3,522
Total ..	709,831	483,040	407,011	501,731	590,835
WESTERN AUSTRALIA—					
Wheaten	225,959	188,272	208,303	190,399	234,772
Oaten	62,622	51,255	56,002	58,551	91,152
Lucerne	258	230	352	137	206
Other	1,197	969	1,242	709	1,368
Total ..	290,036	240,726	265,899	249,796	327,498

It will be seen that wheaten hay is the principal hay crop in New South Wales, South Australia, and Western Australia, oaten hay in Victoria and Tasmania, and lucerne in Queensland.

3. **Total Yield.**—The Commonwealth hay crop for the season 1915–16 was the highest on record, and amounted to 5,633,988 tons. The second in importance was 3,955,311 tons for the season 1912–13, while the third was 3,507,589 tons for 1916–17. For many years past the State of Victoria has been the largest hay producer in the Commonwealth, and in the five seasons, 1915–16 to 1919–20 inclusive, accounted for nearly 39 per cent. of the total production. The total yields of the several States from 1860 onwards are given hereunder :—

COMMONWEALTH HAY CROP, 1860–1 TO 1919–20.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.Ter.	F.Ter.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1860–1	50,927	144,211	414	71,241	8,099	62,318	..	..	337,210
1870–1	69,602	183,708	5,506	197,149	20,833	40,763	..	..	517,561
1880–1	174,194	300,581	23,441	261,371	19,563	35,883	..	..	815,033
1890–1	213,034	567,779	50,116	310,125	25,014	52,021	..	..	1,218,089
1900–1	526,260	677,757	78,758	353,662	103,813	94,198	..	..	1,834,448
1910–11	843,080	1,292,410	151,252	595,064	178,891	115,190	..	..	3,175,887
1915–16	1,570,941	2,342,094	53,858	1,100,127	395,172	168,449	350	2,997	5,633,988
1916–17	1,172,078	1,232,721	145,279	615,059	236,989	103,141	350	1,972	3,507,589
1917–18	781,972	949,545	153,695	486,693	267,163	80,405	14	2,234	2,723,921
1918–19	751,247	1,113,861	92,230	567,941	250,014	115,896	30	2,383	2,893,602
1919–20	580,959	1,242,489	41,804	596,954	370,025	143,053	500	2,354	2,989,138

4. Value of Hay Crop.—The following table furnishes particulars concerning the total value and the value per acre of the hay crop of the several States of the Commonwealth for the season 1919–20 :—

VALUE OF HAY CROP, 1919–20.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	£	£	£	£	£	£	£	£	£
Total value ..	6,411,500	9,318,868	478,323	3,533,829	1,961,252	894,081	500	28,300	22,626,453
Value per acre	£6/16/8	£8/6/10	£9/15/10	£5/19/7	£5/19/9	£8/13/9	£5/-/-	£16/18/8	£7/4/8

5. ***Average Yield per Acre.***—*The States of the Commonwealth in which the highest* average yields per acre have been obtained during the last decennium are those of Tasmania and Queensland, these being also the States in which the smallest areas are devoted to this crop. For the same period the lowest yield for the Commonwealth as a whole was that of 13 cwt. per acre in 1914–15; while the highest was that of 31 cwt. in 1915–16. The average for the decennium was 23¾ cwt. Particulars for the several States for the seasons 1915–16 to 1919–20, and the average for the last ten years, are given hereunder :—

AVERAGE YIELD OF HAY PER ACRE, 1915–16 TO 1919–20.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W.Aust.	Tas.	N. Ter.	F. Ter.	C'wlth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1915–16	1.42	1.76	0.98	1.55	1.36	1.63	2.50	1.77	1.57
1916–17	1.37	1.37	1.29	1.27	0.98	1.30	2.50	1.97	1.31
1917–18	1.26	1.27	1.60	1.20	1.00	1.08	1.00	2.17	1.23
1918–19	0.92	1.13	1.68	1.13	1.00	1.33	1.00	1.51	1.07
1919–20	0.62	1.11	0.86	1.01	1.16	1.39	5.00	1.41	0.96
Average for 10 seasons 1910–20	a1.12	1.29	1.37	1.14	1.00	1.39	2.52	b1.30	1.19

(*a*) Including Federal Territory. (*b*) Average for nine seasons.

6. Relation to Population.—During the past five seasons the Commonwealth hay production per head of population has varied between 11 cwt. in 1917–18 and 22¾ cwt. in 1915–16; *averaging about 14 cwt. per head for the period. The State in which the* hay production per head of population is highest is South Australia. Details for the seasons 1915–16 to 1919–20 are given hereunder :—

HAY PRODUCTION PER 1,000 OF POPULATION, 1915–16 TO 1919–20.

Season.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1915–16 ..	840	1,651	79	2,509	1,243	838	77	1,639	1,142
1916–17 ..	631	881	217	1,421	767	516	73	887	719
1917–18 ..	414	673	227	1,120	863	396	3	937	552
1918–19 ..	389	779	133	1,274	798	555	6	1,068	575
1919–20 ..	290	831	58	1,279	1,143	660	106	1,227	570

7. Oversea Imports and Exports.—Under normal conditions hay, whether whole or in the form of chaff, is somewhat bulky for oversea trade, and consequently does not in such circumstances figure largely amongst the imports and exports of the Commonwealth. During 1919–20, 259 tons were imported, while the exports amounted to 1,987 tons, valued at £21,392, the principal purchases being made by India, the Philippines, and the Straits Settlements.

8. **Hay Production in Other Countries.**—As already noted, the hay crops of most European countries consist of grasses of various kinds, amongst which clover, lucerne, sainfoin and rye grass occupy prominent places. The statistics of hay production in these countries are not prepared on a uniform basis, and consequently any attempt to furnish extensive comparisons would be misleading. It may be noted, however, that in Great Britain the production of hay from clover, sainfoin, etc., for the year 1919 amounted to 2,290,000 tons from 1,895,499 acres, while from permanent grasses a yield of 3,608,000 tons of hay was obtained from 4,318,188 acres, giving a total of 5,898,000 tons from 6,213,687 acres, or about 19 cwt. per acre.

§ 12. Green Forage.

1. **Nature and Extent.**—In all the States of the Commonwealth a considerable area is devoted to the production of green forage, mainly in connexion with the dairying industry. The total area so cropped during the season 1919–20 was 1,401,237 acres. Of the total, the New South Wales area represented about 72 per cent., that of Queensland 11¼ per cent., while that of Victoria amounted to 6½ per cent. Under normal conditions the principal crops cut for green forage are maize, sorghum, oats, barley, rye, rape, and lucerne, while small quantities of sugar-cane also are so used. Particulars concerning the area under green forage in the several States from 1890 onwards are furnished in the following table :—

AREA UNDER GREEN FORAGE, 1890–1 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1890–1	37,473	10,091	9,546	7,349	161	1,497	..	..	66,117
1900–1	78,144	18,975	41,445	13,136	1,024	3,749	..	..	156,473
1910–11	179,382	71,826	89,667	20,728	4,545	8,695	19	..	374,862
1915–16	162,808	60,426	236,293	32,664	15,622	7,587	24	137	515,561
1916–17	149,824	49,667	116,449	37,352	28,653	8,133	24	49	390,151
1917–18	152,374	55,903	87,909	41,869	29,856	5,873	47	19	373,850
1918–19	331,079	73,641	90,635	56,067	28,141	6,827	..	50	586,440
1919–20	1,007,435	89,802	157,568	114,126	27,007	5,271	..	28	1,401,237

2. **Value of Green Forage Crops.**—The value of these crops is variously estimated in the several States, and the Commonwealth total for the season 1919–20 may be taken approximately as £2,627,051, or about £1 17s. 6d. per acre.

3. **Relation to Population.**—Particulars concerning the area under green forage per 1,000 of the population of the Commonwealth and the several States for the seasons 1915–16 to 1919–20 are given hereunder :—

AREA UNDER GREEN FORAGE PER 1,000 OF POPULATION, 1915–16 TO 1919–20.

Season.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1915–16 ..	87	43	348	74	49	38	5	75	105
1916–17 ..	81	36	174	86	93	41	5	22	80
1917–18 ..	80	40	130	96	96	29	10	9	76
1918–19 ..	172	51	131	126	90	33	..	22	117
1919–20 ..	503	60	217	244	81	24	..	15	267

§ 13. Sugar-cane.

1. **Area.**—Sugar-cane is grown for sugar-making purposes in only two of the States of the Commonwealth, viz., Queensland and New South Wales, and much more extensively in the former than in the latter. Thus, of the total area of 159,037 acres under sugar-cane in the Commonwealth for the season 1919-20, there were 148,469 acres, or about 93½ per cent., in Queensland. Sugar-cane growing appears to have been started in the Commonwealth in or about 1862, *as the earliest statistical record of sugar-cane as a crop is that which credits Queensland with an area of 20 acres for the season 1862-3. In* the following season the New South Wales records show that an area of two acres was devoted to the crop in the mother State. The area under cane in New South Wales reached its maximum in 1895-6 with a total of 32,927 acres. From thence onwards with slight variations, it gradually fell to 10,568 acres in 1919-20. In Queensland, on the other hand, although fluctuations in area are in evidence throughout, the general trend has been one of satisfactory increase, the area under cane for the season 1917-18 being the highest on record. The area under sugar-cane in the Commonwealth from 1870 is given in *the following table*:—

AREA UNDER SUGAR-CANE, 1870-1 TO 1919-20.

Season.	New South Wales.		Queensland.		Commonwealth.		
	Productive.	Unproductive.	Productive.	Unproductive.	Productive.	Unproductive.	Total.
	Acres.	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*
1870-1 ..	1,475	2,607	2,188	4,154	3,663	6,761	10,424
1880-1 ..	4,465	6,506	12,306	7,918	16,771	14,424	31,195
1890-1 ..	8,344	12,102	39,435	11,487	47,779	23,589	71,368
1900-1 ..	10,472	11,642	72,651	35,884	83,123	47,526	130,649
1910-11 ..	5,596	8,167	94,641	47,138	100,237	55,305	155,542
1915-16 ..	6,030	5,228	94,459	58,568	100,489	63,796	164,285
1916-17 ..	5,223	5,746	75,914	91,307	81,137	97,053	178,190
1917-18 ..	5,588	5,134	108,707	67,055	114,295	72,189	186,484
1918-19 ..	4,566	5,924	111,572	48,962	116,138	54,886	171,024
1919-20 ..	4,827	5,741	84,877	63,592	89,704	69,333	159,037

2. **Productive and Unproductive Cane.**—The areas given in the preceding table represent the area on which sugar-cane was grown during the seasons specified for purposes other than green forage. The whole area was not in any case cut for crushing during that season, there being always a considerable amount of young and "stand over" cane, as well as a small quantity required for plants. The season 1917-18 had the highest recorded acreage under sugar-cane, while the greatest area of productive cane was cut for crushing during the 1918-19 season.

3. *Yield of Cane and Sugar.*—Queensland statistics of the production of sugar-cane are not available for dates prior to the season 1897–8. In that season the total for the Commonwealth was 1,073,883 tons, as against 2,879,092 tons for the record season 1917–18. The second highest yield was in the season 1913–14, with a total of 2,271,558 tons. The average production of cane during the decennium ended 1919–20 was 1,823,652 tons. The three highest yields of sugar were in 1917–18, 1913–14, and 1914–15, the quantities being 327,589 tons, 265,029 tons, and 245,876 tons respectively. The decennial average was 211,774 tons of sugar. Particulars relative to the total yields of cane and sugar for a series of years are as follows:—

YIELD OF CANE AND CANE-SUGAR, 1900–1 TO 1919–20.

Season.	New South Wales.		Queensland.		Commonwealth.	
	Cane.	Sugar.	Cane.	Sugar.	Cane.	Sugar.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1900–1 ..	199,118	19,938	848,328	92,554	1,047,446	112,492
1910–11 ..	160,311	20,115	1,840,447	210,756	2,000,758	230,871
1915–16 ..	157,748	19,144	1,152,516	140,496	1,310,264	159,640
1916–17 ..	143,558	16,064	1,579,514	176,973	1,723,072	193,037
1917–18 ..	174,881	19,875	2,704,211	307,714	2,879,092	327,589
1918–19 ..	105,234	12,278	1,674,829	189,978	1,780,063	202,256
1919–20 ..	91,321	10,837	1,258,760	162,136	1,350,081	172,973

Large quantities of molasses are produced as a by-product in the sugar mills; details giving the quantity produced and proportions used for distilling, fuel, manure and other purposes for a series of years will be found in Section XIII.—"Manufacturing Industries."

4. **Average Yields of Cane and Sugar per Acre.**—The average yield per acre of productive cane is much higher in New South Wales than in Queensland, the average during the last decade being 26.87 tons for the former and 17.54 for the latter State. For some years prior to 1910–11, the yield remained practically constant in New South Wales at about 21 tons per acre. Since that year, the average yield per acre has shewn an upward tendency, reaching 30 tons or over during 1913–14, 1914–15, and 1917–18. The climatic conditions affecting the tremendous length of coastline embracing this industry in Queensland are largely responsible for the great variations in the yields of sugar for that State, which ranged, during the past decennium, from 12.20 tons per acre in 1915–16 to 24.88 tons in 1917–18.

The greatest production of sugar per acre crushed in the Commonwealth during the past quinquennium occurred in 1917–18, when 2.87 tons were obtained, the respective crushings for New South Wales and Queensland averaging 3.56 and 2.83 tons. The average yield per acre for the past ten years was 3.15 tons in New South Wales, and 2.03 tons in Queensland.

5. **Quality of Cane.**—The quantity of cane required to produce a ton of sugar varies not only with the district in which the cane is grown but also with the season, and for the decennium ended 1919–20 averaged 8.61 tons, the average production of sugar being approximately 11½ per cent. of the weight of cane crushed. The systematic study of beet culture in European countries has shewn that by suitable methods the sugar

contents of the root can be greatly increased, and it is believed that a similar improvement can be effected in the yield from sugar-cane.

AVERAGE YIELD OF SUGAR-CANE AND SUGAR PER ACRE, 1900-1 TO 1919-20.

Season.	New South Wales.			Queensland.			Commonwealth.		
	Cane per acre Crushed.	Sugar per acre Crushed.	Cane to each ton of Sugar.	Cane per acre Crushed.	Sugar per acre Crushed.	Cane to each ton of Sugar.	Cane per acre Crushed.	Sugar per acre Crushed.	Cane to each ton of Sugar.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1900-1	19.01	1.90	9.99	11.68	1.27	9.17	12.60	1.35	9.31
1910-11	28.65	3.59	7.97	19.45	2.23	8.73	19.96	2.30	8.67
1915-16	26.16	3.17	8.24	12.20	1.49	8.20	13.04	1.59	8.21
1916-17	27.49	3.08	8.94	20.81	2.33	8.93	21.24	2.38	8.93
1917-18	31.30	3.56	8.80	24.88	2.83	8.79	25.19	2.87	8.79
1918-19	23.05	2.69	8.57	15.01	1.70	8.82	15.33	1.74	8.80
1919-20	18.92	2.25	8.43	14.83	1.91	7.76	15.05	1.93	7.81
Average 10 seasons 1910-20 ..	26.87	3.15	8.53	17.54	2.03	8.62	18.05	2.10	8.61

6. **Relation to Population.**—The sugar production of the Commonwealth during the past five seasons has averaged about 95 lbs. per head of population. In the same period in Queensland, the principal sugar-producing State, the production of sugar per head has ranged between 464 lbs. in 1915-16 and 1,017 lbs. in 1917-18. Details for the period 1915-16 to 1919-20 are as follows:—

SUGAR PRODUCTION PER HEAD OF POPULATION, 1915-16 TO 1919-20.

State.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales ..	23	19	24	14	12
Queensland	464	592	1,017	613	501
Commonwealth	73	89	149	90	74

7. **Sugar Bounties.**—The provision of bounties or similar aids to the sugar-growers of the Commonwealth early occupied the attention of the Commonwealth Parliament, the object in view being that of assisting the industry, and at the same time diminishing the employment of coloured labour in connexion therewith. An account of the various Acts in connexion with sugar bounties and sugar excise tariffs will be found on pages 394 to 396 of Year Book No. 6. In 1912 the Sugar Excise Repeal Act and the Sugar Bounty Abolition Act were passed by the Federal Parliament, conditionally on the Queensland Parliament approving of legislation prohibiting the employment of coloured labour in connection with the industry. The State Sugar Cultivation Act, the Sugar Growers Act, and the Sugar Growers' Employees Act, of 1913, having been approved of, the 1912 Federal Acts, which repeal all previous enactments in regard to excise on sugar and bounty on cane, came into force by proclamation in July, 1913.

8. **Sugar Purchase by Commonwealth Government.**—In June, 1915, the Commonwealth Government assumed control of the Australian sugar output, paying the growers a fixed price of £18 per ton of raw sugar, subsequently raised in 1917 to £21. The

Commonwealth Government disposed of the refined product at an average of £25 10s. per ton in 1915, the object then being to enable the consumer to purchase sugar of 1A grade at 3d. per lb. In January, 1916, however, the wholesale price was raised to £29 5s. per ton, and the retail price to 3½d. per lb. This arrangement was continued from year to year until June 26th, 1920, when an agreement was made with the Queensland Government for a period of three years, covering the seasons of 1920, 1921, and 1922, fixing the price of raw sugar for the first year at £30 6s. 8d. per ton, and making that price the minimum for each of the succeeding seasons, any increase being limited to the extra cost of production, due to higher wages paid to the sugar workers to meet the increased cost of living. In order to recoup the Commonwealth Government for the loss entailed in the purchase at very high prices of large quantities of foreign sugar, owing to the shortage of the Australian crop, the wholesale price of refined sugar was raised on March 25th, 1920, to £49 per ton, and the retail price to 6d. per lb.

9. **Beet Sugar.**—During the past few years an effort has been made to revive the sugar-beet industry in Victoria. The State Government is proceeding with a comprehensive irrigation scheme at Maffra, where the sugar-beet factory is situated. When completed, this scheme will make available for beet growing large areas of land hitherto unsuitable. The price of beet has risen to 35s. per ton with the prospect of a further increase. A fine grade of white sugar is manufactured, and considerable quantities of beet pulp and molasses are distributed for stock feed.

10. **Acreage and Yield of Sugar Beet.**—The following table shews the acreage under sugar beet, and the production in Victoria during the past five seasons :—

AREA AND PRODUCTION OF SUGAR BEET IN VICTORIA, 1915-16 TO 1919-20.

Particulars.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
Area .. .. acres	461	1,320	1,200	1,009	1,090
Production .. tons	4,928	15,159	14,487	12,290	13,195
Average per acre .. ,,	10.69	11.48	12.07	12.18	12.11

11. **Imports and Exports of Sugar.**—The production of sugar in the Commonwealth during the past five years has not been sufficient to supply the growing requirements of Australian consumption. It has been found necessary to annually import on the average some 75,690 tons, valued at £1,839,835, the principal countries engaged in supplying this commodity being Java and Fiji. Particulars concerning the imports and exports of cane sugar for the past five years are as follows :—

IMPORTS AND EXPORTS OF CANE SUGAR, 1915-16 TO 1919-20.

Year.	Oversea Imports.		Oversea Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£
1915-16 ..	116,111	1,869,768	1,103	22,458	115,008	1,847,310
1916-17 ..	81,161	1,639,097	1,033	21,798	80,128	1,617,299
1917-18 ..	15,805	278,985	2,070	45,860	13,735	233,125
1918-19 ..	52,569	1,052,124	2,029	52,136	50,540	999,988
1919-20 ..	112,805	4,359,203	2,825	83,729	109,980	4,275,474

§ 14. Vineyards.

1. *Nature and Extent.*—The introduction of the vine into Australia has been set down by different investigators as at various dates, the years 1815 and 1828 being principally favoured. It would seem, however, that the vine was really brought out with the first fleet which initiated the colonisation of Australia in 1788, and that consequently the Australian vine is as old as Australian settlement. As already mentioned, a report of Governor Hunter's gives the area under vines in 1797 as 8 acres. From New South Wales the cultivation spread to Victoria and South Australia, and these States have now far outstripped the mother State in the area which they have devoted to its cultivation. In Queensland and Western Australia also, vine-growing has been carried on for many years, but in neither State has the industry progressed with the rapidity attained in Victoria and South Australia. In Tasmania the climate is not favourable to the growth of grapes. The purposes for which grapes are grown in Australia are three in number, viz.—(i) for wine-making, (ii) for table use, and (iii) for drying. The total area under vines in the several States from 1860 onwards is given in the following table :—

COMMONWEALTH VINEYARDS, 1860–1 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.		Acres.
1860–1	1,584	1,138	..	3,180	335	There are no vineyards in Tasmania.	6,237
1870–1	4,504	5,406	416	6,131	710		17,227
1880–1	4,800	4,980	739	4,337	659		15,515
1890–1	8,044	20,686	1,981	9,535	1,024		41,270
1900–1	8,441	30,634	2,019	20,158	3,325		64,677
1910–11	8,321	23,412	1,634	22,952	2,795		59,114
1915–16	7,883	22,353	1,373	27,764	2,751		62,124
1916–17	8,666	23,264	1,256	29,177	3,031		65,394
1917–18	8,594	25,236	1,274	29,762	2,996		67,862
1918–19	8,740	26,072	1,287	31,023	2,936		70,058
1919–20	8,923	27,441	1,203	32,784	2,975		73,326

The area devoted to vines in the Commonwealth amounted to 65,673 acres in 1904–5. From that year onwards a gradual decline set in, and at the end of 1914–15, ten years later, the acreage had decreased to 60,985. Since that date, however, as the result of satisfactory annual increases, the 1904–5 figure has been exceeded, and the 1919–20 total represents the maximum area planted with vines.

The wine-growing industry in Australia, more particularly in Victoria and New South Wales, received a severe check by various outbreaks of phylloxera. With a view to the eradication of this disease, extensive uprooting of vineyards in the infested areas was undertaken, while further planting within such areas, except with phylloxera-resistant vines, was prohibited.

2. **Wine Production.**—The production of wine in Australia has not increased as rapidly as the suitability of soil and climate would appear to warrant. The cause of this is probably twofold, being in the first place due to the fact that the Australians are not a wine-drinking people and consequently do not provide a local market for the product, and in the second to the fact that the new and comparatively unknown wines of Australia find it difficult to establish a footing in the markets of the old world, owing to the competition of well-known brands. Active steps are being taken in various ways to bring the Australian wines under notice, and it may be confidently expected that when

their qualities are duly recognised the wine production of this country will exhibit a rapid development. Particulars concerning the quantity of wine produced in the several States during the past five seasons are contained in the table given hereunder :—

AUSTRALIAN WINE PRODUCTION, 1915-16 TO 1919-20.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.		Gallons.
1915-16 ..	571,000	1,380,367	59,008	3,709,878	166,820	No production of wine in Tasmania.	5,887,073
1916-17 ..	628,950	1,302,660	23,171	2,951,048	220,439		5,126,268
1917-18 ..	538,215	800,068	39,125	5,331,166	156,532		6,865,106
1918-19 ..	555,770	1,349,309	44,491	6,544,125	199,142		8,692,837
1919-20 ..	717,893	1,634,680	48,495	5,085,939	162,397		7,649,404

3. **Relation to Population.**—In relation to population the areas of the vineyards of the several States exhibit an upward tendency during the last five years, the Commonwealth total increasing from 13 to 14 acres per 1,000 of the population during the same period. Details for the seasons 1915-16 to 1919-20 are furnished in the succeeding table :—

AREA OF VINEYARDS PER 1,000 OF POPULATION, 1915-16 TO 1919-20.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1915-16 ..	4	16	2	63	9	..	13
1916-17 ..	5	17	2	67	10	..	13
1917-18 ..	5	18	2	68	10	..	14
1918-19 ..	5	18	2	70	9	..	14
1919-20 ..	4	18	2	70	9	..	14

4. **Imports and Exports.**—The principal countries of origin of wine imported into Australia are France, Spain, Portugal, and Italy, the greater portion of the sparkling wines coming from France. Particulars relative to the importations of wine into the Commonwealth during the past five years are given hereunder :—

COMMONWEALTH IMPORTS OF WINE, 1915-16 TO 1919-20.

Year.	Quantity.			Value.		
	Sparkling.	Other.	Total.	Sparkling.	Other.	Total.
	Gallons.	Gallons.	Gallons.	£	£	£
1915-16 ..	26,744	62,357	89,101	55,573	27,494	83,067
1916-17 ..	18,659	47,741	66,400	39,212	26,497	65,709
1917-18 ..	9,274	31,808	41,082	20,569	20,635	41,204
1918-19 ..	7,551	30,464	38,015	16,226	21,121	37,347
1919-20 ..	34,383	57,211	91,594	118,164	50,112	168,276

The principal countries to which wine is exported from Australia are the United Kingdom and New Zealand, a small but fairly regular export trade being also carried on with India, Ceylon, Fiji, and the South Sea Islands. Details concerning the exports of wine from Australia during the past five years are given in the following table :—

COMMONWEALTH EXPORTS OF WINE, 1915-16 TO 1919-20.

Year.	Quantity.			Value.		
	Sparkling.	Other.	Total.	Sparkling.	Other.	Total.
	Gallons.	Gallons.	Gallons.	£	£	£
1915-16 ..	3,638	726,113	729,751	7,001	113,598	120,599
1916-17 ..	2,919	603,523	606,442	5,426	106,200	111,626
1917-18 ..	4,976	367,738	372,714	8,269	93,618	101,887
1918-19 ..	7,970	695,536	703,506	16,883	184,285	201,168
1919-20 ..	6,112	795,049	801,161	12,482	221,741	234,223

5. **Other Viticultural Products.**—In addition to grapes for wine-making purposes, large quantities are grown in all the States for table use, while, particularly in Victoria and South Australia, the drying of raisins and currants is also carried on. The quantities of table grapes grown in the several States during the past five seasons are as follows :—

TABLE GRAPES, 1915-16 TO 1919-20.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1915-16 ..	2,940	3,524	932	1,608	2,027	..	11,031
1916-17 ..	2,214	2,606	668	758	1,940	..	8,186
1917-18 ..	1,710	1,127	696	984	1,570	..	6,087
1918-19 ..	2,415	2,052	614	1,745	1,892	..	8,718
1919-20 ..	2,678	3,502	613	1,129	2,161	..	10,083

Statistics of the quantities of raisins and currants dried during each of the past five seasons are given in the following table :—

RAISINS AND CURRANTS DRIED, 1915-16 TO 1919-20.

Season.	N.S. Wales.		Victoria.		South Aust.		Western Aust.		Commonwealth.	
	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
1915-16 ..	5,539	2,415	180,104	70,556	59,929	66,518	1,496	1,128	247,068	140,617
1916-17 ..	4,239	2,276	142,970	66,449	35,624	50,147	1,332	1,843	184,165	120,715
1917-18 ..	3,508	1,904	104,911	53,799	42,192	51,924	703	1,948	151,314	109,575
1918-19 ..	3,496	2,450	135,060	68,234	29,662	59,334	2,163	2,157	170,881	132,675
1919-20 ..	7,084	2,465	211,307	55,661	58,502	60,400	8,559	4,307	280,452	142,833
Average 10 seasons 1910-20	6,501		129,758	52,684	40,141	52,193	(a) 1,520	(a) 1,746	282,890	

(a) Average for eight seasons.

6. Imports and Exports.—The following table gives the oversea imports and exports of raisins and currants during each of the past five years :—

COMMONWEALTH OVERSEA IMPORTS AND EXPORTS OF RAISINS AND CURRANTS, 1915-16 TO 1919-20.

Year.	*Oversea Imports.*		*Oversea Exports.*		*Net Exports.*	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
			RAISINS.			
	lbs.	£	lbs.	£	lbs.	£
1915-16 ..	124,964	3,983	6,952,041	215,270	6,827,077	211,287
1916-17 ..	45,237	1,907	5,621,551	166,341	5,576,314	164,434
1917-18 ..	164,699	4,791	3,957,863	114,510	3,793,164	109,719
1918-19 ..	28,818	927	3,111,055	95,523	3,082,237	94,596
1919-20 ..	42,169	2,201	8,839,839	359,561	8,797,670	357,360
			CURRANTS.			
1915-16 ..	1,218,947	17,728	1,168,557	25,316	− 50,390	7,588
1916-17 ..	2,416	54	6,525,426	165,006	6,523,010	164,952
1917-18 ..	201	5	4,934,822	134,654	4,934,621	134,649
1918-19 ..	19,909	505	3,470,803	100,326	3,450,894	99,821
1919-20 ..	2,877	120	7,947,811	246,382	7,944,934	246,262

NOTE.—The minus sign (−) signifies net imports.

The quantities of raisins and currants imported into Australia were generally greater than the exports for all years prior to 1912, when the increased production in Australia left a surplus available for export. During the last five years the value of the exports exceeded that of the imports by £1,590,668, the average annual excess for the quinquennium being £318,134.

§ 15. Orchards and Fruit Gardens.

1. Nature and Extent.—Fruit-growing has made rapid progress in the Commonwealth during recent years, the area devoted thereto having increased in the past ten years by no less than 93,097 acres. The States in which the increase is most marked are :— Victoria, 30,228 acres; New South Wales, 26,911 acres; Tasmania, 13,618 acres; and Queensland, 9,276 acres. During the same period the South Australian fruit-growing area increased by 8,857 acres, while that in Western Australia exhibited an increase of 4,206 acres. The increased areas in Tasmania and Western Australia are mainly due to extensive plantings of apple trees with a view to the possibilities of the London market for fresh fruit. The total area devoted to orchards and fruit gardens in the several States is given hereunder :—

COMMONWEALTH ORCHARDS AND FRUIT GARDENS, 1915-16 TO 1919-20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1915-16 ..	57,516	80,120	22,616	27,576	21,805	37,351	..	25	247,008
1916-17 ..	60,360	83,087	25,293	28,794	21,752	38,380	..	26	257,692
1917-18 ..	64,116	83,618	26,001	29,020	21,137	38,024	..	18	262,134
1918-19 ..	67,432	85,130	24,250	30,085	20,412	37,424	..	18	264,751
1919-20 ..	72,803	86,336	24,636	30,617	19,815	37,687	..	1	271,895

The varieties of fruit grown differ materially in various parts of the several States, and range from such fruits as the pineapple, paw-paw, mango, and guava of the tropics, to the strawberry, the raspberry, and the currant of the colder parts of the temperate zone. The principal varieties grown in Victoria are the apple, pear, peach, apricot, and plum. In New South Wales, citrus fruits (orange, lemon, &c.), occupy the leading position, although peaches, bananas, apples, and plums are also extensively grown. In Queensland the banana, the pineapple, the orange, the apple, the peach, and the mango are the varieties most largely grown. In South Australia, in addition to the apple, orange, apricot, peach, and plum, the almond and the olive are also largely grown. In Western Australia, the apple, orange, peach, pear, plum, fig, and apricot are the sorts chiefly grown, while in Tasmania, although the apple represents over four-fifths of the area in that State devoted to fruit-growing, small fruits, such as the currant, raspberry, and gooseberry, are very extensively grown, and the balance of the area is mainly occupied with the pear, plum, apricot, peach, and cherry. The following table gives the acreage under the principal kinds of fruit grown, and the quantity and value of fruit produced. The acreages shown are exclusive of young trees not yet bearing. The acreages for each kind of fruit in Victoria are not available :—

PARTICULARS OF THE PRINCIPAL KINDS OF FRUIT GROWN IN THE SEVERAL STATES OF THE COMMONWEALTH DURING THE SEASON 1919–20.

Fruit.		*N.S.W.*	*Victoria.*	*Q'land.*	*S. Aust.*	*W. Aust.*	*Tasmania.*	*F. Ter.*	*C'wealth.*
Apples	.. acres	8,664	..	1,901	8,673	7,964	25,079	..	..
	bushels	524,253	2,227,317	68,477	445,916	629,757	2,351,939	50	6,247,709
	£	162,206	482,585	49,931	130,626	322,750	461,176	16	1,609,290
Apricots	.. acres	1,316	..	112	2,384	472	1,113	..	..
	bushels	105,839	301,009	2,840	176,316	32,434	119,756	..	738,194
	£	50,810	145,488	3,053	93,393	21,082	34,929	..	348,755
Bananas	.. acres	2,853	..	7,694	..	10	..	..	..
	bushels	352,266	..	717,033	..	1,948	..	..	1,071,247
	£	235,410	..	258,929	..	1,948	..	..	496,287
Lemons	.. acres	2,893	..	310	427	246	..	..	..
	bushels	270,876	74,427	11,168	48,743	31,706	..	..	436,920
	£	100,560	35,353	10,703	18,279	20,477	..	..	185,372
Nectarines and Peaches	acres	8,753	..	2,041	2,467	1,107	73	..	..
	bshls.	754,494	984,801	77,784	198,842	62,771	8,233	20	2,086,945
	£	317,630	297,641	55,793	77,079	47,532	1,647	10	797,332
Oranges	.. acres	18,588	..	2,730	2,931	2,093	..	..	..
	bushels	1,494,091	137,184	185,806	238,918	207,170	..	..	2,263,169
	£	617,360	82,310	107,613	95,567	128,168	..	..	1,031,018
Pineapples	acres	34	..	3,922	..	..	..	..	..
	dozen	18,531	..	676,484	..	..	..	..	695,015
	£	7,800	..	191,670	..	..	..	..	199,470
Pears	.. acres	2,376	..	282	1,645	959	1,489	..	..
	bushels	165,641	723,857	6,128	139,625	81,102	176,577	..	1,292,930
	£	49,510	174,932	5,005	39,359	31,680	32,372	..	332,858
Plums	.. acres	2,008	..	719	1,589	670	476	..	..
	bushels	140,381	274,329	11,361	136,053	47,318	73,224	40	682,706
	£	60,198	85,728	10,130	61,381	28,637	20,441	18	266,533
Other fruits	acres	2,613	..	2,548	3,438	822	2,119	..	..
	£	113,346	170,138	68,906	100,877	28,546	70,306	11	552,130
Total	.. acres	50,098	64,019	22,259	23,554	14,343	30,349	1	204,623
	£	1,714,830	1,474,175	761,733	616,561	630,820	620,871	55	5,819,045

2. Relation to Population.—The acreage of orchards and fruit gardens of the Commonwealth in relation to population has increased during the last eighteen years to an extent which more than compensates for the decline experienced in the case of

vineyards. Taking the two in conjunction, the relative area under vineyards and orchards has, during the period, considerably increased, averaging 55 acres per 1,000 of population in 1901–2, and 66 in 1919–20. Details for orchards and fruit gardens for the years 1915–16 to 1919–20 are as follows:—

AREA OF ORCHARDS AND FRUIT GARDENS PER 1,000 OF POPULATION, 1915–16 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1915–16..	31	57	33 (a)	63	69	186	..	14	50
1916–17..	32	59	38	67	70	192	..	12	53
1917–18..	34	59	38	67	68	187	..	9	53
1918–19..	35	59	35	67	65	179	..	8	53
1919–20..	36	58	34	65	60	174	..	0.5	52

3. **Commonwealth Imports and Exports.**—A considerable fruit trade, both import and export, is carried on by the Commonwealth with oversea countries, the major portion of the importations consisting of fresh fruits, while dried fruits, principally raisins and currants, bulk largely in the exports. The principal fresh fruits imported during the past five years were bananas, apples, oranges, and lemons, the bananas coming from Fiji, while the apples and citrus fruits were supplied by the United States. The fresh fruits exported during the same period consisted largely of apples consigned to the United Kingdom, and citrus fruits to New Zealand. Many varieties of dried fruits were imported into the Commonwealth since 1915–16, but the bulk of those exported consisted of currants and raisins, which were shipped mainly to the United Kingdom, New Zealand, and Canada.

Particulars concerning the oversea imports and exports of dried fruits for the last five years are as follows:—

COMMONWEALTH OVERSEA IMPORTS AND EXPORTS OF DRIED FRUITS, (a) 1915–16 TO 1919–20.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1915–16 ..	11,857,787	159,398	8,254,878	244,069	−3,602,909	84,671
1916–17 ..	6,058,769	89,006	13,460,274	372,712	7,401,505	283,706
1917–18 ..	1,587,451	42,856	9,427,669	266,297	7,840,218	223,441
1918–19 ..	1,806,333	53,594	8,524,587	253,040	6,718,254	199,446
1919–20 ..	9,444,713	234,811	18,034,391	643,670	8,589,678	408,859

NOTE.—The minus sign (−) signifies net exports.

(a) Including raisins and currants referred to under Vineyards, § 14, 6.

Similar information with regard to the Commonwealth oversea trade in fresh fruits for the same period is contained in the table given hereunder:—

COMMONWEALTH OVERSEA IMPORTS AND EXPORTS OF FRESH FRUITS, 1915-16 TO 1919-20.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1915-16 ..	43,281,700	374,174	64,554,800	415,305	21,273,100	41,131
1916-17 ..	46,304,700	299,360	16,294,800	141,583	-30,009,900	-157,777
1917-18 ..	25,635,100	160,899	4,648,900	46,481	-20,986,200	-114,418
1918-19 ..	13,656,500	90,034	20,809,100	188,381	7,152,600	98,347
1919-20 ..	8,330,500	95,560	42,722,200	466,910	34,391,700	371,350

NOTE.—The minus sign (−) signifies net imports.

4. **Jams and Jellies.**—A considerable oversea trade in jams and jellies is now carried on by the Commonwealth, the value of the imports for the year 1919-20 amounting to £9,913, and of the exports to £1,218,997. The destinations of the exports were principally the United Kingdom, Egypt, United States of America, France, and South African Union. Particulars relative to imports and exports during each of the last five years are as follows:—

COMMONWEALTH OVERSEA TRADE IN JAMS AND JELLIES, 1915-16 TO 1919-20.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1915-16 ..	288,165	9,087	22,849,553	437,144	22,561,388	428,057
1916-17 ..	152,260	6,210	45,074,352	949,112	44,922,092	942,902
1917-18 ..	16,658	521	64,891,116	1,410,548	64,874,458	1,410,027
1918-19 ..	78,329	2,294	79,277,560	1,847,970	79,199,231	1,845,676
1919-20 ..	179,480	9,913	44,793,409	1,218,997	44,613,929	1,209,084

5. **Preserved Fruit.**—Details concerning the quantities and values of preserved fruit imported into and exported from the Commonwealth cannot readily be obtained, owing to the fact that in the Customs returns particulars concerning fruit and vegetables are in certain cases combined. The total value of fruit and vegetables, other than fresh fruits, dried fruits, potatoes, and onions, imported into Australia during 1919-20 was £72,877, and the corresponding value of exports was £564,799.

§ 16. Minor Crops.

1. **Nature and Extent.**—In addition to the leading crops which in the foregoing pages have been dealt with in some detail, there are many others which, owing either to their nature, or to the fact that their cultivation has advanced but little beyond the experimental stage, do not occupy so prominent a position. Some of the more important of these are included under the headings—Market Gardens, Pumpkins and Melons, Nurseries, Grass Seed, Tobacco, Flax, Hops, and Millet. Cotton-growing has in recent years received some attention in the tropical portions of the Commonwealth, although the industry cannot yet be said to be beyond the experimental stage. The total area in the Commonwealth during the season 1919-20 devoted to crops not dealt with in previous sections was 71,918 acres, of which market gardens accounted for 28,416 acres, or nearly 40 per cent.

2. **Market Gardens.**—Under this head are included all areas on which mixed vegetables are grown. Where considerable areas are devoted to the production of one vegetable, such for instance as the potato, the onion, the melon, the tomato, etc., the

figures are usually not included with market gardens, but are shewn either under some specific head, or under some general head as "Other Root Crops," or "All Other Crops." The area under market gardens in the several States of the Commonwealth during each of the last five seasons is given in the table hereunder :—

COMMONWEALTH MARKET GARDENS, 1915-16 TO 1919-20.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1915-16 ..	10,940	11,379	2,330	1,712	2,787	435	..	27	29,610
1916-17 ..	10,683	10,746	2,305	1,522	2,153	448	..	27	27,884
1917-18 ..	10,100	11,362	1,901	1,502	2,334	447	..	39	27,775
1918-19 ..	10,004	11,594	1,814	1,405	2,237	389	..	39	27,482
1919-20 ..	9,872	12,633	1,752	1,343	2,410	367	..	39	28,416

The area of market gardens has declined in all the States, with the exception of Victoria, during the past five years, the total area for the Commonwealth decreasing by 1,194 acres since 1915-16.

3. **Grass Seed.**—The total area under this crop during 1919-20, exclusive of New South Wales, for which State no figures as to area are available, was 6,765 acres, of which 1,235 acres were in Victoria, 3,131 acres in Queensland, and 2,360 acres in Tasmania. The total yield for 1919-20, including New South Wales, was 65,344 bushels, valued at £34,896.

4. **Tobacco.**—Tobacco-growing is an industry which has experienced marked fluctuations, although at one time it promised to occupy an important place amongst the agricultural industries of the Commonwealth. Thus, as early as the season 1888-9 the area under this crop amounted to as much as 6,641 acres, of which 4,833 were in New South Wales, 1,685 in Victoria, and 123 in Queensland. This promise of importance was, however, not fulfilled, and after numerous fluctuations, in the course of which the Victorian area rose in 1895 to over 2,000 acres, and that in Queensland to over 1,000 acres, the total area for the season 1919-20 had declined to 2,331 acres, distributed as follows :—New South Wales, 1,604 acres ; Victoria, 406 acres ; and Queensland, 321 acres. This decline in production appears to have been due to the comparatively small demand which existed in Australia for the locally-produced leaf, and to the fact that the cost of production and preparation in the Commonwealth prevented the Australian leaf from obtaining a footing in outside markets. Possibly under more favourable circumstances, and with greater attention given to the production of leaf of the best quality only, the industry may eventually assume considerable proportions. In all the States in which its cultivation has been tried, the soil and climate appear to be very suitable for the growth of the plant, and the enormous importations of tobacco in its various forms into the Commonwealth furnish an indication of the extensive local market which exists for an article grown and prepared in such a manner as to meet the requirements of consumers. The value of the net importations of tobacco into the Commonwealth during the year 1919-20 amounted to £2,330,452, comprising unmanufactured tobacco £2,441,179, cigars £94,933, cigarettes £62,137, and snuff £1,635, while manufactured tobacco shewed a balance in favour of exports amounting to £269,432.

5. **Pumpkins and Melons.**—The total area under this crop in the Commonwealth during 1919-20 was 17,031 acres, of which 3,436 acres were in New South Wales, 1,089 acres in Victoria, 11,743 acres in Queensland, 413 acres in Western Australia, and 250 in South Australia. The production for the Commonwealth amounted to 51,520 tons.

6. **Hops.**—Hop-growing in the Commonwealth is practically confined to Tasmania and some of the cooler districts of Victoria, the total area for the season 1919-20 being 1,384 acres, of which 1,312 acres were in Tasmania, and 72 acres in Victoria. The Tasmanian area, though still small, has increased considerably during the past eighteen years, the total for the season 1901-2 being only 599 acres. On the other hand, the Victorian area, which in 1901-2 was 307 acres, had diminished to 72 acres in 1919-20. The cultivation of hops was much more extensive in Victoria some forty years ago than at present, the area devoted to this crop in 1883-4 being no less than 1,758 acres. During the year 1919-20 the imports of hops exceeded the exports by 253,240 lbs., the

7. **Flax.**—For the past twenty years flax has been grown intermittently in the Gippsland district of Victoria, and attempts have also been made to introduce its cultivation into Tasmania and New South Wales, but without success. The chief reason for this failure was the dominant position held by Russia in the European fibre markets. That country produced 80 per cent. of the world's output of fibre, and the low standard of wages resulted in a correspondingly low price for fibre. Consequently the price the Australian farmer received for his flax rendered its cultivation unattractive compared with that of other agricultural products. In 1907, the Commonwealth Government, with a view to foster the industry, provided for the payment of a bounty of 10 per cent. of the market value of all flax products, but the low returns for fibre, about £45 per ton, prevented the extension of flax growing to any appreciable degree, and on 1st July, 1917, the bounty provisions expired. At the end of that year, however, the shortage of flax fibre in Europe had become very acute owing to the occupation of the Baltic Provinces by Germany, and at the suggestion of the Advisory Council of Science and Industry, and with a view primarily to assisting the Imperial Government, the Commonwealth Government formulated a scheme to encourage the cultivation of flax. A Flax Industry Committee, consisting of representatives of the Department of Agriculture of Victoria, the flax growers, and the cordage manufacturers, was appointed with executive powers under War Precautions Regulations. At the same time, a guarantee was given by the Commonwealth Government of £5 per ton for flax of specified standard grown in 1918. The area was increased from 400 acres in 1917 to 1,420 acres in 1918. The contract under which the Imperial Government agreed to purchase the fibre from the 1918 flax crop was cancelled, and the fibre was sold on the open market. The actual value f.o.b. Melbourne of the products from this crop was as follows:—Fibre, £15,000; linseed, £7,500; and tow, £1,900, or a total of £24,400. In addition to the guaranteed price of £5 per ton, the growers of this crop received dividends to the amount of £4 per ton. Owing to the disorganization of Russian industries, and the depletion of the world's stocks of linens, there is every indication that the present high values of flax products will be retained for many years. A further guarantee was given by the Commonwealth Government of £6 per ton for the 1919 flax crop. Although about 2,200 acres were planted in 1919 under the £6 guarantee, the product of 1,611 acres only was delivered to the mills. As a result of the unfavourable season, the yield from this 1,611 acres was small, amounting to 1,625 tons. Owing to the present unsettled state of the fibre market, it is difficult to estimate the value of the fibre and tow from the 1919 flax crop, but the following figures have been calculated on a conservative basis:—Fibre, £6,000; linseed, £9,800; and tow, £1,500, making a total of £17,300. In order to encourage farmers to take advantage of this unprecedented opportunity of firmly establishing the flax industry, the Commonwealth Government has guaranteed a price for the flax grown in Australia during the next three years. With a three years' guarantee of remunerative prices, there is every incentive to farmers in suitable districts not only to grow flax, but to co-operate in the erection of flax-mills for the treatment of the flax straw. The guarantee for 1920 and 1921 is £6 per ton, and for 1922 £5 per ton for raw flax. The total area sown to flax in 1920 was approximately 1,500 acres, but only the product of approximately 1,100 acres, representing 1,507 tons of crop, were delivered to the various flax mills. Australia imports annually flax products to the value of £1,800,000, and as it has been demonstrated that flax can be grown to perfection in many parts of the Commonwealth, it would appear that there is a good prospect of successfully establishing a local industry. There are five mills operating in Gippsland, and the erection of additional mills is anticipated. The whole of the commercial flax crop is grown in Victoria, but a grant of £1,000 has been made by the Commonwealth Government for experimental work, and in all the States experiments are being carried out to determine the suitability of the soil and climate for the cultivation of this crop. Experiments have also been carried out with a view to improve the methods of treatment at the mills.

8. **Millet.**—Millet appears in the statistical records of four of the Commonwealth Divisions. The total area devoted thereto in 1919–20 was 6,864 acres, of which 4,220 acres were in New South Wales, 1,850 in Victoria, 769 in Queensland, and 25 in the Northern Territory. The particulars here given relate to millet grown for grain and fibre. That grown for green forage is dealt with in the section relating thereto.

9. **Nurseries.**—In all the States somewhat extensive areas are devoted to nurseries for raising plants, trees, etc. Statistics concerning the area so occupied for flowers, fruit trees, etc., are available for New South Wales, Victoria, South Australia, and Western

Australia. During 1919–20 the areas in those States were 569, 756, 146, and 122 acres respectively. Statistics so far as they relate to forestry are given elsewhere.

10. **Cotton.**—Cotton-growing on a small scale has been tried in Queensland, but so far without very marked success. In 1902, 8 acres were devoted to this crop, in 1907, 300 acres were under cultivation, and in 1911 the maximum either in regard to area or production was reached, an area of 605 acres producing 186,894 lbs. of unginned cotton. A gradual falling-off has since been experienced, and in 1919–20 the area was only 72 acres with a production of 27,470 lbs. of cotton. Special efforts have recently been made to encourage cotton-growing in Queensland, and hopes are entertained that with the invention of a mechanical device for the picking of the cotton the industry will become firmly established, since the soil and conditions appear eminently suitable for the growth of this crop. Small areas in the Northern Territory have also been planted with cotton. The tropical portions of Western Australia have also long been regarded as suitable for its cultivation.

11. **Coffee.**—Queensland is the only State of the Commonwealth in which coffee-growing has been at all extensively tried, and here the results have up to the present time been far from satisfactory. The total area devoted to this crop reached its highest point in the season 1901–2, when an area of 547 acres was recorded. The area then continuously declined to 1906–7, when it was as low as 256 acres. In subsequent seasons the area fluctuated somewhat, but on the whole with a downward tendency, and in 1919–20 only 24 productive acres were recorded, with a yield of 16,101 lbs.

12. **Other Crops.**—Miscellaneous small crops are grown in the several States, amongst which may be mentioned tomatoes, rhubarb, artichokes, arrowroot, chicory, and flowers.

§ 17. Bounties on Agricultural Products.

1. **General.**—The Bounties Act of 1907, passed by the Federal Parliament in order to encourage the manufacture and production of certain articles in the Commonwealth, included among the items on which bonuses were payable several agricultural products. Under an Act passed in 1912 the provisions of the 1907 Act in respect of certain items were renewed. During 1918 an Apple Bounty Act was passed, which provided for the payment of a bounty on the export of apples grown and evaporated in Australia and sold to the Imperial Government for delivery between 1st April and 31st August, 1918. Products of the soil on which these bounties were payable are as follows:—

BOUNTIES ON AGRICULTURAL PRODUCTS.

Article.	Period dating from 1st July, 1907, during or in respect of which Bounty may be paid.	Rates of Bounty.	Maximum amounts which may be assigned in any one year.
			£
Cotton, ginned	8 years	10 % on market value	6,000
Fibres—			
New Zealand flax	10 „	10 „ „	3,000
Flax and hemp	10 „	10 „ „	8,000
Jute	10 „	20 „ „	9,000
Sisal hemp	10 „	10 „ „	3,000
Oil materials supplied to an oil factory for the manufacture of oil—			
Cotton seed	8 „	10 „ „	1,000
Linseed (flax seed)	10 „	10 „ „	5,000
Rice, uncleaned	10 „	20s. per ton	1,000
Coffee, raw, as prescribed ..	8 „	1d. per lb.	1,500
Tobacco leaf for the manufacture of cigars, high grade, of a quality to be prescribed	10 „	2d. „	4,000
Fruits—			
Dates (dried) (a)	15 „	1d. „	1,000
Dried (except currants and raisins) or candied, and exported	10 „	10% on market value	6,000
Evaporated apples	..	$\frac{1}{16}$d. per lb.	12,000

(a) Any unexpended amount assigned in any year to be available for the years following.

At the present time the only one of these bounties still in force is that relating to dates.

2. Bounties Paid.—Although the rate of bonus on the several articles was fairly liberal, the bounties were not availed of to any great extent, as will be seen from the following table, which gives particulars as to the quantity of the articles raised and the amounts paid as bounties in respect thereto for the five financial years ended 1919–20 :—

PARTICULARS OF BOUNTIES PAID ON AGRICULTURAL PRODUCTS (OTHER THAN SUGAR), 1915–16 TO 1919–20.

Article.	Quantity produced on which Bounties were paid.					Amount paid as Bounties.				
	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	1915–16.	1916–17.	1917–18.	1918–19.	1920.
						£	£	£	£	£
Cotton, ginned lbs.	13,751	..	..	..	..	22	..	..	..	..
Fibres—										
Flax and hemp tons	238	122	..	..	..	634	267	..	..	..
Sisal hemp ,,	1	..	5	..	..	2	..	19	..	..
Oil materials supplied to an oil factory for the *manufacture of* oil—										
Cottonseed lbs.	22,400	..	..	..	..	10	..	..	..	..
Linseed (flax seed) cwt.	..	..	..	..	..	..	..	..	..	..
Coffee, raw, as prescribed lbs.	732	..	..	..	..	3	..	..	..	..
Tobacco leaf for the manufacture of cigars, high grade, of a quality to be prescribed lbs.	17,423	57,795	1,577	..	..	145	488	13	..	..
Fruits—										
Dried (except *currants and raisins*) or candied, and exported lbs.	6,000	579,334	131,432	..	..	16	2,068	342	..	..
Evaporated apples lbs.	..	..	..	1,388,577	..	..	..	..	4,054	..

§ 18. Fertilizers.

1. General.—In the early days of settlement and cultivation in the Commonwealth, scientific cultivation was in a comparatively undeveloped state. The early farmers were neither under the necessity, nor in fact aware of the necessity, of supplying the constituents to the soil demanded by each class of crop. The widely divergent character of the soils in the Commonwealth, their degeneration by repeated cropping, the limitations of climatic conditions, the difficulties of following any desired order of rotation of crops, all rendered it essential to give attention to artificial manuring. The introduction of the modern seed-drill, acting also as a fertilizer distributor, has greatly facilitated the use of artificial manures, and much land formerly regarded as useless for cultivation has now been made productive. There is reason to believe that this feature will be even more strikingly characteristic of the future.

2. Fertilizers Acts.—In order to protect the interests of users of artificial manures legislation has been passed in each of the States, regulating the sale and preventing the adulteration of fertilizers. A list of these Acts and their main features will be found in Year Book No. 12 (page 378).

3. Imports.—The local production of artificial manures has assumed large proportions during the last few years, though considerable quantities are still imported. The importation of fertilizers has increased over 100 per cent. since 1901. The chief items, as regards both quantity and value, are those relating to phosphates, a fertilizer which has proved itself to be very suitable for the growing of cereals in Australian soils. During 1919–20 the values of rock phosphates imported represented nearly 60 per cent. of the total importation of fertilizers. Pleasant Island, with 41 per cent., was the largest contributor, Christmas Island coming next with 31½ per cent., while the bulk of the remainder was supplied by the colony of Gilbert and Ellice Islands. The whole of the soda nitrate came from Chile.

The imports of artificial manures during the last five years are given in the following table. It will be noticed that the values of rock phosphates imported have been consistently large, representing over 70 per cent. of the total importation of fertilizers during the period. No importations of manufactured superphosphates were made during *1917–18, 1918–19, and 1919–20, though considerable quantities were imported during 1914–15.*

COMMONWEALTH IMPORTS OF FERTILIZERS, 1915–16 TO 1919–20.

Fertilizer.		1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
Bonedust	cwt.	..	40	..	2,004	1,508
"	£	..	18	..	785	1,420
Guano	cwt.	1,800	264,581	..	137,008	535,688
"	£	792	30,772	..	17,304	61,021
Superphosphates ..	cwt.	57,790	200	..	..	..
" ..	£	16,308	61	..	..	..
Rock phosphates ..	cwt.	3,813,788	3,556,561	3,643,038	2,811,812	2,585,163
" " ..	£	440,434	444,084	433,940	334,036	330,544
Soda nitrate ..	cwt.	112,203	165,472	53,800	38,483	130,914
" " ..	£	49,463	107,977	43,264	30,767	84,398
Other	cwt.	5,109	1,202	397	520	61,454
"	£	3,509	1,494	909	488	75,116
Total	cwt.	3,990,690	3,988,056	3,697,235	2,989,827	3,314,727
	£	504,506	585,306	478,113	383,380	552,499

4. *Exports.*—The subjoined table shews the exports of artificial manures for the years 1915–16 to 1919–20. Practically the whole of these fertilizers are manufactured locally, and are shipped mainly to New Zealand, Japan, Java, and the Pacific Islands:—

COMMONWEALTH EXPORTS OF FERTILIZERS, 1915–16 TO 1919–20.

Fertilizer.		1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
Bonedust	cwt.	71,795	37,337	17,252	34,722	131,710
"	£	22,503	12,832	7,221	18,516	74,036
Guano	cwt.	..	4,455	840	8,669	601
"	£	..	1,061	234	2,775	181
Superphosphates ..	cwt.	823,361	483,552	699,784	345,493	264,174
" ..	£	156,862	105,492	179,691	95,623	67,288
Rock phosphates ..	cwt.	75,839	66,010	70,004	44,032	72,462
" " ..	£	10,695	8,464	9,810	6,773	11,775
Soda nitrate ..	cwt.	2,619	7,339	18,868	60	28,223
" " ..	£	1,835	5,678	16,741	84	28,673
Ammonia sulphate ..	cwt.	129,651	109,248	118,147	196,954	167,420
" " ..	£	102,821	111,794	211,322	350,098	226,289
Other	cwt.	86,964	72,572	30,037	21,486	158,661
"	£	28,059	20,925	14,532	11,008	108,926
Total	cwt.	1,190,229	780,513	954,952	651,416	823,251
	£	322,835	266,246	439,551	484,877	517,168

5. **Statistics of Use of Fertilizers.**—Statistics of the use of manures in the Commonwealth during the past five years are available for all the States. Particulars concerning New South Wales are given hereunder:—

FERTILIZERS USED IN NEW SOUTH WALES, 1915–16 TO 1919–20.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1915–16	5,796,376	2,763,301	47.50	177,788	56,621
1916–17	5,164,434	2,352,180	45.55	166,374	50,704
1917–18	4,461,172	1,974,620	44.26	181,052	44,883
1918–19	3,891,823	1,780,254	45.74	180,734	42,804
1919–20	3,773,577	1,708,762	45.28	172,878	43,592

Particulars for Victoria for the past five seasons are as follows :—

FERTILIZERS USED IN VICTORIA, 1915-16 TO 1919-20.

Season.	Total Area of Crops.	Farmers Using Manure.	Area Manured.		Manure Used.	
			Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	No.	Acres.	%	Tons.	Tons.
1915-16 ..	5,711,265	33,378	4,336,252	75.92	187,602	128,667
1916-17 ..	4,851,335	33,165	3,870,742	79.79	181,268	117,812
1917-18 ..	4,110,225	30,109	3,336,418	81.17	167,114	106,119
1918-19 ..	3,942,899	32,589	3,222,822	81.74	162,105	104,993
1919-20 ..	4,000,815	32,114	3,249,768	81.23	164,491	115,627

The following table gives particulars of the use of manures in Queensland since 1915-16 :—

FERTILIZERS USED IN QUEENSLAND, 1915-16 TO 1919-20.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1915-16	729,588	25,166	3.45	43,483	7,608
1916-17	885,259	22,145	2.50	34,811	6,869
1917-18	727,958	17,862	2.45	42,779	4,833
1918-19	525,517	18,932	3.60	45,328	6,679
1919-20	563,762	20,139	3.57	46,097	6,428

The figures relating to the use of fertilizers in South Australia are shewn in the table below :—

FERTILIZERS USED IN SOUTH AUSTRALIA, 1915-16 TO 1919-20.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1915-16	3,763,570	3,112,462	82.70	90,142	98,258
1916-17	3,627,477	2,872,571	79.19	101,032	96,893
1917-18	3,079,776	2,553,713	82.92	87,550	90,795
1918-19	3,111,079	2,587,648	83.19	92,063	90,302
1919-20	3,058,770	2,583,186	84.45	102,488	93,819

Corresponding particulars relative to Western Australia for the seasons 1915–16 to 1919–20 are given in the following table :—

FERTILIZERS USED IN WESTERN AUSTRALIA, 1915–16 TO 1919–20.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1915–16	2,189,456	2,117,166	96.70	53,257	70,523
1916–17	2,004,944	1,903,026	94.92	49,216	70,326
1917–18	1,679,772	1,586,748	94.46	49,578	58,989
1918–19	1,605,048	1,547,144	96.39	49,900	57,276
1919–20	1,628,163	1,561,957	95.93	54,487	58,153

Statistics relating to the use of manures in Tasmania for the past five seasons are as follows :—

FERTILIZERS USED IN TASMANIA, 1915–16 TO 1919–20.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Tons.	Tons.
1915–16	333,334	182,374	54.71	30,486	15,232
1916–17	270,526	144,532	53.43	30,990	13,886
1917–18	238,199	120,476	50.58	28,006	11,472
1918–19	254,109	135,558	53.35	25,032	11,367
1919–20	270,955	153,606	56.69	21,604	12,588

6. **Local Production of Fertilizers.**—Statistics relative to the local production of fertilizers are incomplete, and detailed returns for fertilizer factories other than bone mills are not available. The number of firms engaged in the manufacture of artificial manures in the Commonwealth at latest available date was 94, made up as follows :—New South Wales, 21 ; Victoria, 29 ; Queensland, 22 ; South Australia, 10 ; Western Australia, 4 ; and Tasmania, 8.

7. **Benefits Derived from the Use of Fertilizers.**—There is little doubt that the increasing use throughout the Commonwealth of fertilizers, natural and artificial, combined with the greater attention being devoted to fallowing and to the combination of sheep-farming with agriculture, is having the effect of improving the prospects of those dependent for a livelihood on the products of the soil. Reference has previously been made to the loss to the soil of phosphoric acid which the Commonwealth export of wheat and its milled products involves, and the necessity which thus arises for returning this ingredient in some form. Similarly, other staple products exported impose their respective tolls upon the soil, and the increased use of fertilizers furnishes evidence that producers are alive to the necessity for making good the deficiency so arising.

§ 19. Ensilage.

1. **Value to Stockowners.**—The use of ensilage as a substitute for green fodder during periods of drought or spells of dry weather, or for winter use, is less extensive in Australia than the circumstances would appear to warrant. There is, however, a growing disposition on the part of dairy farmers to make silos on their holdings, as they find that

dairy cattle eat ensilage greedily, and that by its means the output of milk, both in regard to quantity and quality, may be kept up long after the supply of ordinary green food is exhausted. Sheepbreeders are also recognising the fact that during protracted periods of dry weather the silo enables them to keep their stock in good condition, and that lambing can take place satisfactorily. Ensilage thus obviates the expense of travelling or trucking sheep for hundreds of miles to get beyond the drought area, or the equally costly and even ruinous alternative of providing chaff for food at high prices and costly freight. In the rearing of lambs for the London market, ensilage appears to be destined to play an important part, as the lambs thrive upon it much better than upon dry food. By the judicious economising of the surplus growth of green food with the use of the silo, farmers and squatters can carry more stock on their holdings than they otherwise would be justified in doing. Not only is the great waste of superabundant food thus avoided, but it becomes possible to change into a succulent and nutritious food much growth that in any other state would not be eaten by stock. Thus such vegetation as marsh mallows, thistles, weeds of all sorts, and even the swamp reed (*Arundo phragmites*), which grows in great quantities in lagoons, billabongs, and swamps, are all eaten with avidity when offered to stock in the form of ensilage. The pit and stack silos are rapidly being superseded by those built of red gum and hardwood or concrete. This is found to a great extent to obviate the loss sustained by mould, at the same time reducing the risk of fire. A portable silo made of iron has been devised in sections of such size and weight as to admit of ready handling. These silos can be increased in diameter or height by the addition of further sections.

2. **Government Assistance in the Production of Ensilage.**—The Government of Victoria, recognising that defective methods of making ensilage have often been adopted, has for some years been making special efforts to educate the farming community, by the issue of bulletins, lectures, etc., so that mistakes may be avoided, and the conditions essential for the production of good ensilage may be better appreciated. These conditions vary with the climate and with the locality. The Government also undertakes the erection of different types of silos on very liberal terms, repayment extending over a series of years. Experts erect the silos and give practical lessons as to packing them, etc. The New South Wales Government has, by giving advice in the "Agricultural Gazette," and by the issue of special bulletins, taken steps towards the education of the farmers. Silos also have been erected on the various experimental farms with a view to demonstrating the value of ensilage. No financial assistance is, however, given in New South Wales in this connexion.

3. **Quantity Made.**—Particulars concerning the number of silos and the quantity of ensilage made in the several States of the Commonwealth in the seasons 1915–16 to 1919–20 are furnished in the following table :—

ENSILAGE MADE IN COMMONWEALTH, 1915–16 TO 1919–20.

State or Territory.	1915–16.		1916–17.		1917–18.		1918–19.		1919–20.	
	Holdings. (a)	Ensilage Made.	Holdings. (a)	Ensilage Made.	Holdings. (a)	Ensilage Made.	Holdings. (a)	Ensilage Made.	Holdings. (a)	Ensilage Made.
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
New South Wales ..	130	18,511	119	16,836	116	14,789	60	6,292	112	13,328
Victoria	269	16,356	179	10,974	117	9,852	95	8,249	74	6,072
Queensland	37	3,012	70	5,115	60	4,556	45	3,541	72	4,318
South Australia ..	43	1,688	20	1,795	18	921	16	1,083	15	1,435
Western Australia ..	12	518	12	278	11	323	11	441	5	211
Tasmania	17	849	7	114	38	518	7	180	7	275
Federal Territory ..	..	..	..	..	..	..	..	..	..	..
Northern Territory ..	..	..	1	55	1	50	1	50	..	..
Commonwealth ..	508	40,934	408	34,667	356	31,011	235	19,836	285	25,639

(a) No. of holdings on which ensilage was made.

Following the drought of 1902–3 greater attention was paid to ensilage than was previously the case, and during the four seasons ended 1909–10 a continuous and fairly rapid increase was in evidence in all the States, both in the number of holdings on which ensilage was made and in the quantity produced. The following five seasons, however, shewed a falling-off, but the reduction cannot be accepted as an indication of a lessening of appreciation of the benefits of ensilage, but rather of the fact that stocks had not been drawn upon to any great extent during the previous seasons. The accumulated stocks proved of very great value during the 1914 drought, though far below what would have been the case if more attention had been paid to ensilage-making during the previous years of surplus green food. A very substantial increase took place in 1915–16, both in the holdings on which ensilage was made and in the quantity produced, but during the last four years the number of holdings and the quantity of ensilage made declined considerably, the falling off in Victoria being particularly heavy.

§ 20. Agricultural Colleges and Experimental Farms.

1. **Introduction.**—In most of the States, agricultural colleges and experimental farms have been established with a view to promoting agriculture and to establishing improved and more scientific systems of stock-breeding and dairying. In these colleges, and on some of the farms, provision is made for the accommodation of pupils, to whom both practical and theoretical instruction is given by experts in various branches of agriculture. Analyses of soils and fertilizers are made, manures are tested, and elementary veterinary science, etc., is taught, while general experimental work is carried on with cereal and other crops, not merely for the purpose of shewing that it is practicable to produce certain crops in a given place, but also to shew how it is possible to make farming pay best in that locality. Opportunities are afforded for practice in general agricultural work, and instruction is given in the conservation of fodder; in cheese and butter making; in the management, breeding, and preparation for the market of live stock; in the eradication of pests and weeds; and in carpenters', blacksmiths', and other trades.

Travelling expert lecturers are sent to the various agricultural and dairying centres, and there is a wide distribution of periodical agricultural gazettes and bulletins on matters of importance at special seasons.

2. **Particulars of Agricultural Colleges and Experimental Farms.**—In previous issues detailed information is given in respect of agricultural colleges, experimental farms and agricultural education generally. See Year Book No. 11, pp. 393–5.

§ 21. Government Loans to Farmers.

1. **Introduction.**—All the Australian States have established systems under which financial aid is rendered to agriculturists by the Government. The principle upon which such aid is founded was probably first practically applied in Germany, in the year 1770, when the *Landschaften Bank* was created. The establishment of the *Crédit Foncier* nearly a century later in France was a creation of a similar character. This latter institution was designed to enable house and land owners to raise money on mortgage at a low rate of interest, with facility for repayment by annual instalments including redemption of the capital. It dates from 1852, but the mortgage bank known as the *Caisse Hypothécaire*, which, after a struggling existence, was finally liquidated in 1864, was based essentially on the same principle. Over the operations of the *Crédit Foncier*, created under governmental patronage and invested with such special privileges as to virtually constitute it a monopoly, the Government exercised a direct control, by appointing its governor and its two deputy-governors. The *Crédit Foncier* was empowered to lend money only on a first mortgage, and to the amount of one-half of the estimated value of houses and farms, and one-third that of vineyards, woods, and other plantations, and the commission charged could not exceed six-tenths per cent. The system developed and adopted in the Commonwealth, with the object of assisting farmers to make improvements or to develop or utilise the agricultural or pastoral resources of the land, is analogous. Particulars of advances made under the Closer Settlement and similar Acts are dealt with in the section on Closer Settlement.

2. Aggregate of Transactions in each State, 1917 to 1920.—The subjoined table gives aggregates of transactions in reference to advances to farmers in each State during the past four years :—

STATE GOVERNMENT ADVANCES DEPARTMENTS—AGGREGATE OF LOANS TO FARMERS, 1917 TO 1920. (*a*)

State.	Total Advanced to 30th June—				Balance Due at 30th June—			
	1917.	1918.	1919.	1920.	1917.	1918.	1919.	1920.
	£	£	£	£	£	£	£	£
N.S.W. ..	4,281,697	4,514,157	4,774,412	5,416,582	2,522,674	2,544,054	2,599,751	2,903,885
Victoria ..	4,040,582	4,204,542	4,337,542	4,545,452	1,920,737	1,957,694	1,949,023	1,921,735
Q'land ..	1,810,910	2,026,823	2,245,474	2,572,401	1,428,530	1,525,649	1,633,936	1,775,000
S. Aust.(*b*) ..	2,847,017	2,956,859	3,140,711	3,180,340	1,232,705	1,223,897	1,284,795	1,137,749
W. Aust. ..	3,626,658	3,700,488	3,798,146	3,916,432	2,753,559	2,789,388	2,835,631	2,784,680
Tasmania ..	117,027	124,319	129,018	133,853	103,152	105,965	107,437	93,591
Commonwealth	16,723,891	17,527,188	18,425,303	19,765,060	9,961,357	10,146,647	10,410,573	10,616,640
	Profits for Year ended 30th June—				**Accumulated Profits at 30th June—**			
	£	£	£	£	£	£	£	£
N.S.W. ..	17,477	17,446	15,276	3,985	104,898	120,085	135,107	139,092
Victoria(*c*) ..	15,623	14,284	16,616	22,101	142,064	156,348	172,904	195,065
Q'land ..	(*d*)	(*d*)	(*d*)	(*d*)	(*e*)29,328	(*e*)29,328	(*e*) 29,328	(*e*)29,328
S. Aust.(*b*) ..	11,400	11,454	11,128	8,866	102,469	113,923	125,052	133,918
W. Aust. ..	2,894	2,371	7,142	(*f*)	85,245	88,239	95,381	(*f*)
Tasmania ..	1,238	1,224	1,096	846	4,025	5,249	6,346	7,192
Commonwealth	48,632	46,779	51,257	(*g*)35,798	(*e*)468,029	(*e*)513,172	(*e*)564,118	(*g*)504,595

(*a*) Compiled from figures furnished by the Government Savings Bank of Victoria. (*b*) Includes loans to farmers and other producers and to local bodies on the security of their own rates. (*c*) Including profits in connexion with house and similar loans. (*d*) Not shewn since amalgamation with Government Savings Bank. (*e*) See note (*d*). (*f*) Not available. (*g*) Exclusive of Western Australia.

3. Legislation in each State.—An account of the initial legislation in each State in reference to advances to settlers; subsequent legislation; security on which, and objects for which advances were made; amount of advances and repayments up to the end of 1917–18, etc., will be found in previous issues of the Year Book (see No. 12, pages 384 to 389).

4. Particulars Respecting Agricultural and Stock Departments.—A synopsis of the activities and operations of the Agricultural and Stock Departments of the several States of the Commonwealth as on 30th June, 1920, will be found in the appendix to this volume. The main features of organisation are set out under their respective headings, and will be found to embrace such items as the number on staffs, expenditure, facilities for agricultural education and work undertaken in agricultural colleges, technical schools, experimental farms, and orchards and vineyards. The nature of lectures and other forms of agricultural instruction by experts is dealt with, as well as the extent of distribution of plants, and the special steps taken by the departments to disseminate information amongst agriculturists, and also to facilitate placing the products of the State on the market.

§ 22. Graphical Representation of Crops.

1. Areas of Principal Crops.—A graphical representation of the areas devoted to each of the principal crops in the Commonwealth since 1860 will be found on page 275. The crops so represented are as follows :—Wheat, hay, oats, maize, sugar-cane, barley, and vines.

2. Production.—On page 276 will be found a graphical representation of the aggregate yields in the Commonwealth since 1860 of wheat, oats, barley, maize, and hay.

SECTION IX.

FARMYARD AND DAIRY PRODUCTION.

§ 1. Introductory.

1. **General.**—The introduction of cattle into Australia, and the early history of the dairying industry are referred to in some detail in earlier issues of this work (see Official Year Book No. 6, p. 430). It may here be noted that the original stock has been crossed with specially imported stud cattle, while further judicious crossing of strains has resulted in an increased and improved milk supply. In Australia, dairy cattle thrive in the open throughout the year, local climatic conditions demanding no protection other than tree plantations for shelter, and rugging in the coldest weather. Indigenous and imported grasses furnish food during the greater part of the year, and winter fodder, when necessary, is given to the cattle in the fields. With the adoption of scientific methods in the treatment of animals and pasturage and in the processes of manufacture, coupled with effective State supervision, the dairying industry has shewn rapid expansion.

2. **Official Supervision of Industry.**—Dairy experts, under the supervision of the various State Agricultural Departments, give instruction in approved methods of production, and inspect animals, buildings, and marketable produce. A high standard of cleanliness, both of *personnel* and *matériel*, prevails. Financial assistance of a temporary nature is also given, advances made being generally repaid with promptitude.

The export trade is regulated by the terms of the Commonwealth Commerce Act 1905 and regulations thereunder. The provisions of this Act are set out in detail in Official Year Book No. 6, pp. 431–2. It will be sufficient to note here that the true trade description, etc., must be marked on all produce intended for export, while official inspection ensures the maintenance of purity and quality. Upon request of the exporter the goods are certificated by the inspector.

3. **Mixed Farming.**—Dairying is not now, as formerly, wholly confined to farmers, since many graziers in a large way of business have lately given it their attention. In non-coastal regions it is generally carried on in conjunction with agriculture and sheep-raising, sufficient fodder being grown to carry the cattle through the winter months. Local wants are thus met, and in many places remote from the metropolis well-equipped factories have been established.

4. **Factory System.**—Cream separation and butter-making are often carried on together under the co-operative system. The creation of large central butter factories, supplied by numerous separating establishments or "creameries," has resulted in a considerable reduction in the cost of manufacture, since improved appliances, such as refrigerators, may be profitably worked at the larger establishments. The product is also of a more uniform quality. The number of farmers who adhere to hand processes is rapidly diminishing. Formerly the average quantity of milk used per pound of hand-made butter was about 3 gallons, but separator butter requires less than 2½ gallons.

5. **Butter and Cheese Factories.**—The factories in the Commonwealth for the manufacture of butter, cheese, and condensed milk numbered 563 in 1919–20. These were distributed in the various States as follows :—New South Wales, 155 ; Victoria, 181 ; Queensland, 137 ; South Australia, 46 ; Western Australia, 7 ; Tasmania, 37.

§ 2. Milk, Butter, and Cheese.

1. **Dairy Herds.**—Following the drought year 1902 there was up to 1911 a general increase in the number of dairy cows ; the returns for 1912 and the three years following, however, shew a decrease in all the States, with the exception of Western Australia. Satisfactory increases were again noted in 1916 and 1917, while during the next two years the numbers remained practically stationary. In New South Wales, Victoria, South Australia, and Tasmania—as will be seen from the table given below—the proportion of dairy cattle to all cattle is high. In Queensland, the Northern Territory, and Western Australia there is a greatly preponderating number of other cattle, dairying not being firmly established in the tropical regions of the Continent. In southern Queensland, however, the industry has developed remarkably during the last decade. The figures for the Northern Territory are rough estimates only :—

CATTLE AND DAIRY CATTLE, COMMONWEALTH, 1915 TO 1919.

State.		1915.	1916.	1917.	1918.	1919.
New South Wales	All Cattle	2,400,104	2,757,713	3,149,309	3,271,782	3,075,954
	Dairy Cows	743,058	742,544	776,662	717,919	697,140
Victoria	All Cattle	1,043,604	1,175,098	1,371,049	1,596,544	1,631,120
	Dairy Cows	451,088	468,066	534,388	592,079	623,652
Queensland	All Cattle	4,780,893	4,765,657	5,316,558	5,786,744	5,940,433
	Dairy Cows	335,243	343,311	399,508	381,505	373,146
South Australia	All Cattle	226,565	288,887	313,245	342,768	349,502
	Dairy Cows	78,515	86,311	96,661	103,230	106,982
Western Australia	All Cattle	821,048	863,930	957,086	943,847	880,644
	Dairy Cows	28,342	33,788	37,979	42,133	42,993
Tasmania	All Cattle	169,575	179,360	197,938	218,234	214,442
	Dairy Cows	47,540	52,522	58,910	64,511	64,073
Northern Territory	All Cattle	483,961	428,862	638,431	570,039	610,534
	Dairy Cows	70	70	70	70	70
Federal Territory	All Cattle	5,666	8,230	13,408	8,894	8,378
	Dairy Cows	537	719	728	598	480
Commonwealth	All Cattle	9,931,416	10,467,737	11,956,024	12,738,852	12,711,067
	Dairy Cows	1,684,393	1,747,351	1,904,906	1,902,036	1,908,536

2. **Milk.**—The annual quantity of milk produced per dairy cow varies greatly with locality and season, probably reaching as high as 500 gallons, but averaging for the whole of Australia, for all dairy cows and for all seasons, prior to 1916, considerably under 300 gallons per annum. During 1916 and 1917 the average yield exceeded that quantity, amounting to 320 and 333 gallons respectively, but, owing to adverse weather conditions, it again failed to reach the 300 gallons mark in 1918 and 1919, the respective averages being only 293 and 278 gallons per cow. The best yields over a series of years appear to be in Victoria, South Australia and New South Wales, while Queensland and Tasmania in normal years are above Western Australia. In the following table the annual average yields per cow for the last five years are taken from the number of dairy cows which were in milk during any part of the year. The average given is considerably below that for cows which were yielding during the greater part of the year. The highest averages obtain in those States which have most extensively adopted scientific methods of dairying, such as systematic breeding, culling of herds, milk testing, etc.

PRODUCTION OF MILK, COMMONWEALTH, 1915 TO 1919.

Heading.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Terr.	C'wealth. (b)
1915—								
Dairy cows (a) .. No.	756,304	530,802	361,277	84,848	28,224	49,385	704	1,811,544
Production 1,000 gals.	183,935	142,115	70,094	22,185	6,059	10,300	79	434,767
Aver. per cow ..gals.	243	268	194	261	215	209	113	240
1916—								
Dairy cows (a) .. No.	742,801	469,587	339,277	82,413	31,065	50,031	628	1,715,802
Production 1,000 gals.	225,920	186,593	86,938	29,954	6,828	13,364	84	549,679
Aver. per cow ..gals.	304	397	256	363	220	267	134	320
1917—								
Dairy cows (a) .. No.	759,603	511,237	371,410	91,486	35,883	55,716	724	1,826,059
Production 1,000 gals.	247,398	199,738	105,384	32,309	7,550	14,843	131	607,353
Aver. per cow ..gals.	326	391	284	353	210	266	182	333
1918—								
Dairy Cows (a) .. No.	747,286	563,284	390,507	99,945	40,058	61,710	663	1,903,401
Production 1,000 gals.	206,925	207,102	87,580	32,243	8,544	15,796	170	558,360
Aver. per cow ..gals.	277	368	224	323	213	256	256	293
1919—								
Dairy Cows (a) .. No.	707,525	607,866	377,325	105,106	42,663	64,202	539	1,905,216
Production 1,000 gals.	203,707	196,884	71,856	30,899	9,608	16,503	90	529,547
Aver. per cow ..gals.	288	324	190	294	226	257	167	278

(a) Mean for the year. (b) Exclusive of Northern Territory.

3. ***Butter and Cheese.***—*The butter output shews, in general, a tolerably steady increase since the drought year 1902, the most marked development being in Queensland. During the past five years the annual production of butter, after allowing for seasonal fluctuations, has practically remained constant, the average for the period amounting to nearly 174,000,000 lbs., which is considerably less than the record yield of 211,573,745 lbs. in 1911.*

The manufacture of cheese has been steadily increasing throughout the Commonwealth during recent years, the 1917 production being the highest yet recorded. A sharp decline was noticeable in 1918, followed by a satisfactory increase, despite droughty conditions, in 1919. Particulars for the past five years are as follows:—

PRODUCTION OF BUTTER AND CHEESE, COMMONWEALTH, 1915 TO 1919.

State.	1915.	1916.	1917.	1918.	1919.
BUTTER.					
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales	a59,623,885	a79,355,639	a80,460,225	a65,991,738	a63,127,160
Victoria	42,345,113	a59,568,771	a64,405,711	a66,240,403	a60,218,945
Queensland	25,456,714	28,967,279	38,930,690	32,371,575	26,213,514
South Australia	6,317,613	a9,798,142	a10,482,895	a10,444,789	a9,810,335
Western Australia	716,408	1,080,466	1,361,484	1,789,390	1,980,273
Tasmania	3,204,922	3,691,649	4,848,227	4,947,560	4,290,724
Federal Territory	a7,658	a8,832	a7,782	a17,220	a7,840
Commonwealth	137,672,313	182,470,778	200,497,014	181,802,675	165,648,791
CHEESE.					
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales	a5,979,638	a7,830,239	a7,799,676	a5,982,120	a6,762,467
Victoria	3,497,278	a5,869,562	a5,285,003	a6,055,964	a7,735,023
Queensland	4,383,410	8,495,825	11,142,114	8,636,700	8,296,318
South Australia	1,412,692	a2,476,081	a2,449,716	a2,412,389	a2,540,183
Western Australia	835	665	100	200	821
Tasmania	555,375	736,500	754,196	702,868	861,460
Commonwealth	15,829,228	25,408,872	27,430,805	23,790,240	26,196,272

(a) For year ended 30th June of year following.

4. Concentrated Milk.—"Condensed" or "concentrated" milk denotes milk the bulk of which is reduced by evaporation. Small quantities of such milk were made prior to 1911, in which year the output for the Commonwealth was nearly doubled. Increasing quantities were annually manufactured till 1915, when a substantial falling off was in evidence in each of the three contributing States. During the next four years however the condensed milk industry developed considerably, particularly in Victoria, where the output for 1919 was 27,500,000 lbs. greater than that for 1915. There is still a considerable import of milk, as will be seen from the tables hereunder; but in each year, with the exception of 1915–16, there was an excess of exports. No condensed or concentrated milk is made in South Australia, Western Australia, or Tasmania. In New South Wales, Victoria, and Queensland the following are the returns for the last five years :—

CONDENSED AND CONCENTRATED MILK MADE, 1915 TO 1919.

Year.	N.S.W.	Victoria.	Queensland.	Commonwealth.
	lbs.	lbs.	lbs.	lbs.
1915	4,918,064a	16,690,426	5,368,510	26,977,000
1916	5,829,990a	33,280,635a	6,584,272	45,694,897
1917	8,973,916a	37,805,070a	9,409,059	56,188,045
1918	11,192,325a	45,251,710a	6,845,610	63,289,645
1919	12,969,679a	44,219,389a	9,170,034	66,359,102

(a) For year ended 30th June of year following.

5. Oversea Trade in Milk, Butter, and Cheese.—The following tables give the imports, exports, and net exports or imports of butter, cheese, and milk. In each of the five years exports of butter exceeded imports, but there was a net import of cheese and milk in 1915–16.

IMPORTS, EXPORTS, AND NET EXPORTS OF BUTTER, CHEESE AND MILK, COMMONWEALTH, 1915–16 TO 1919–20.

Products.		1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
		IMPORTS.				
Butter	lbs.	4,577,332	517,091	8,610	16,439	38,774
"	£	349,110	38,749	592	1,087	2,282
Cheese	lbs.	1,532,336	86,035	45,976	13,903	28,625
"	£	66,936	5,536	2,940	1,098	2,988
Milk—concentrated and preserved(a)	lbs.	4,191,493	1,607,445	772,987	575,934	1,075,887
" " " "	£	152,051	63,713	42,458	30,802	49,029
		EXPORTS.				
Butter	lbs.	18,036,317	75,361,869	72,277,526	41,114,764	39,006,304
"	£	1,117,629	5,338,848	4,904,417	3,193,086	3,301,695
Cheese	lbs.	159,003	10,586,456	8,427,098	2,303,308	7,524,910
"	£	9,347	420,600	350,819	118,855	377,905
Milk—concentrated and preserved(a)	lbs.	939,660	16,453,839	25,690,863	27,962,938	35,568,218
" " " "	£	31,340	553,993	1,029,424	1,092,911	1,606,310
		NET EXPORTS.(b)				
Butter	lbs.	13,458,985	74,844,778	72,268,916	41,098,325	38,969,530
"	£	768,519	5,300,099	4,903,825	3,191,999	3,299,413
Cheese	lbs.	−1,373,333	10,500,421	8,381,122	2,289,405	7,496,285
"	£	− 57,589	415,064	347,879	117,757	374,917
Milk—concentrated and preserved(a)	lbs.	−3,251,833	14,846,394	24,917,876	27,387,004	34,492,331
" " " "	£	− 120,711	490,280	986,966	1,062,109	1,557,281

NOTE.—The minus sign (−) signifies net imports.
(a) See definition above. (b) Excess of exports over imports.

6. **Local Consumption of Butter and Cheese.**—The total production of butter and cheese, with the net export or import for the corresponding period subtracted or added, gives approximately the quantity available for consumption in the Commonwealth. In the period considered hereunder, with the exception of the year 1915, the local supply of cheese was adequate:—

BUTTER AND CHEESE FOR LOCAL CONSUMPTION, 1915 TO 1919.

Products.		1915.	1916.	1917.	1918.	1919.
		lbs.	lbs.	lbs.	lbs.	lbs.
Butter ..	Total ..	124,213,328	107,626,000	128,228,098	140,704,350	126,670,261
,, ..	Per head of population	25.10	22.08	25.98	27.07	24.26
Cheese ..	Total ..	17,202,559	14,908,451	19,049,683	21,500,835	18,699,987
,, ..	Per head of population	3.49	3.06	3.86	4.27	3.58

The quantity available for consumption in 1919 averaged 24¼ lbs. of butter and about 3½ lbs. of cheese per head of population, an amount probably unsurpassed anywhere. The consumption of butter and cheese in the United Kingdom in normal times is given as about 20 lbs. per head per annum.

§ 3. Pigs, Bacon, etc.

1. **Pigs.**—Attention has been paid, both privately and by the various State Governments, to improving the breed, and consequently the market value of pigs. The number of pigs in the Commonwealth from 1915 to 1919 is shown below:—

NUMBER OF PIGS, COMMONWEALTH, 1915 TO 1919.

State.	1915.	1916.	1917.	1918.	1919.
New South Wales (*b*) ..	280,869	359,504	395,639	294,338	253,338
Victoria (*a*) ..	192,002	254,436	323,159	267,819	186,810
Queensland ..	117,787	129,733	172,699	140,966	99,593
South Australia ..	66,237	118,542*b*	110,353*b*	79,078*b*	60,295*b*
Western Australia ..	58,231	90,756	111,844	85,863	58,155
Tasmania (*a*) ..	37,778	53,033	54,653	44,328	35,530
Northern Territory ..	*500*	*500*	*500*	1,200	1,675
Federal Territory (*b*) ..	289	259	518	310	572
Commonwealth ..	753,693	1,006,763	1,169,365	913,902	695,968

(*a*) As on 1st March of year following. (*b*) As on 30th June of year following.

An examination of the returns of pigs shews remarkable fluctuations. There was a heavy falling off in 1915, followed by substantial increases during 1916 and 1917 in which latter year the number of pigs was the highest ever recorded in Australia. The figures for 1918 and 1919 reveal considerable decreases in practically all the States, the number of pigs in the Commonwealth being reduced by 473,397. The number of pigs per head of population, and the number per square mile, will be found in the tables of live stock, pages 213 and 214.

2. **Bacon and Ham.**—During the four years 1915–18, the production of bacon and ham increased considerably in all the States, the Commonwealth total of 66,171,428 lbs. for the latter year being the greatest quantity ever made in Australia. The 1919 figures, however, reveal a substantial falling off in production, the decrease being noticeable in all the States.

PRODUCTION OF BACON AND HAM, COMMONWEALTH, 1915 TO 1919.

State.	1915.	1916.	1917.	1918.	1919.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales ..	*a*13,569,022	*a*15,779,369	*a*18,544,053	*a*16,801,370	*a*16,657,362
Victoria	13,659,974	*a*18,115,028	*a*21,311,876	*a*22,202,605	*a*19,374,009
Queensland ..	12,363,939	10,427,649	14,791,540	16,476,480	12,155,489
South Australia ..	2,432,485	*a*3,993,137	*a*6,591,064	*a*6,567,394	*a*5,810,616
Western Australia ..	*b*202,824	*c*2,058,027	*c*2,362,604	*c*2,813,650	*c*2,609,284
Tasmania	895,020	992,779	1,298,819	1,309,633	1,128,098
Federal Territory ..	*a*7,619	*a*8,787	*a*11,091	*a*296	*a*12,236
Commonwealth ..	43,130,883	51,374,776	64,911,047	66,171,428	57,747,092

(*a*) For year ended 30th June of year following. (*b*) Made on farms only. (*c*) A portion only from pigs slaughtered in the State, balance imported and subsequently cured.

3. **Oversea Trade in Pig Products.**—The oversea trade in pigs and pig products is shewn in the following tables:—

IMPORTS, EXPORTS, AND NET EXPORTS OF BACON AND HAM, FROZEN PORK, PIGS, AND LARD, COMMONWEALTH, 1915–16 TO 1919–20.

Particulars.		1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
			BACON AND HAM.			
Imports	lbs.	425,277	90,626	5,097	42,624	15,047
,, ...	£	20,643	4,787	353	2,169	1,067
Exports	lbs.	590,788	1,006,431	5,068,952	5,637,565	3,040,933
,, ...	£	*35,278*	*60,414*	*321,635*	*378,723*	*258,890*
Net Exports ..	lbs.	165,511	915,805	5,063,855	5,594,941	3,025,886
,, ..	£	14,635	55,627	321,282	376,554	257,823
			FROZEN PORK.			
Imports	lbs.	862,768	73,294	121	..	..
,, ...	£	32,249	2,680	3	..	..
Exports	lbs.	2,783	32,681	262,503	839,557	371,397
,, ...	£	108	1,341	11,915	40,325	19,149
Net Exports ..	lbs.	– 859,985	– 40,613	262,382	839,557	371,397
,, ..	£	– 32,141	– 1,339	11,912	40,325	19,149
			PIGS.			
Imports	No.	12	6	20	4	16
,, ...	£	63	23	438	102	94
Exports	No.	64	19	36	60	164
,, ...	£	582	146	209	479	1,044
Net Exports ..	No.	52	13	16	56	148
,, ..	£	519	123	– 229	377	950

NOTE.—The minus sign (–) signifies net imports.

IMPORTS, EXPORTS, AND NET EXPORTS OF BACON AND HAM, FROZEN PORK, PIGS, AND LARD, COMMONWEALTH, 1915-16 TO 1919-20—*continued.*

Particulars.		1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
			LARD.			
Imports	lbs.	3,873,248	408,552	7,208	29,575	22,001
"	£	*108,985*	*12,225*	*380*	*1,475*	*1,092*
Exports	lbs.	342,593	1,796,821	1,466,703	6,016,825	7,969,444
"	£	*13,736*	*59,205*	*56,353*	*205,694*	*375,910*
Net Exports ..	lbs.	-3,530,655	1,388,269	1,459,495	5,987,250	7,947,443
" ..	£	- *95,249*	*46,980*	*55,973*	*204,219*	*374,818*

NOTE.—The minus sign (-) signifies net imports.

From 1901 to 1903 there was a considerable net import of bacon and ham, but for the following years, up to 1919-20, with the exception of 1915-16, when the figure was small, there was a large net export. The local production of pork and lard for each of the years 1911 to 1913 was more than sufficient for the local demand; during 1914-15, 1915-16, and 1916-17, however, the imports of frozen pork exceeded the exports by 25,546 lbs., 859,985 lbs., and 40,013 lbs. respectively, while in 1915-16 the net import of lard amounted to 3,530,655 lbs.

The net exports of pig products have assumed considerable proportions during the past five years. In 1915-16, owing to decreased production, a heavy net import of 4,225,129 lbs. was necessary, but during each of the next four years the net exports amounted to 2,463,461, 6,785,732, 12,421,748, and 11,344,726 lbs. respectively.

4. Local Consumption of Bacon and Ham.—From 1904 to 1919 the production of bacon and ham was sufficient to meet the local demand, and there was a surplus for export.

BACON AND HAM AVAILABLE FOR LOCAL CONSUMPTION, 1915 TO 1919.

Particulars.	1915.	1916.	1917.	1918.	1919.
	lbs.	lbs.	lbs.	lbs.	lbs.
Total	42,965,372	50,458,971	59,847,192	60,576,487	54,721,206
Per head of population ..	*8.71*	*10.35*	*12.13*	*12.04*	*10.48*

5. Total Dairy Production.—The total dairy production of the Commonwealth in 1919 is shewn below:—

TOTAL DAIRY PRODUCTION, COMMONWEALTH, 1919.

Where Produced.	N.S.W. (a)	Victoria. (a)	Q'land.	S. Aust. (a)	W. Aust.	Tasmania.	Fed. Terr. (a)	C'wealth.
				MILK.				
Used for—	gallons.	gallons.	gallons.	gallons.	gallons.	gallons.	gallons.	gallons.
Butter ..	147,842,103	139,539,903	53,761,827	21,850,595	4,745,576	10,467,010	29,650	377,736,664
Cheese ..	6,954,032	7,732,839	7,232,639	2,488,942	1,485	882,961	..	25,292,898
Condensing and concentrating ..	3,618,755	10,615,118	2,228,942	..	..	..	..	16,462,815
Other purposes ..	45,792,240	38,996,261	8,632,630	6,560,016	4,860,616	5,152,789	60,220	*b*110,054,772
Total ..	203,707,130	196,884,121	71,856,038	30,899,553	9,607,677	16,502,760	89,870	*b*529,547,149
				BUTTER.				
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
In Factories	59,636,489	55,475,039	24,528,657	6,128,604	995,953	3,081,945	..	149,846,687
On Dairy and other Farms ..	3,490,671	4,743,906	1,684,857	3,681,731	984,320	1,208,779	7,840	15,802,104
Total ..	63,127,160	60,218,945	26,213,514	9,810,335	1,980,273	4,290,724	7,840	165,648,791

(*a*) For year ended 30th June, 1920. (*b*) Including 10,000 gallons, Northern Territory.

TOTAL DAIRY PRODUCTION, COMMONWEALTH, 1919—*continued*.

Where Produced.	N.S.W. (a)	Victoria. (a)	Q'land.	S. Aust. (a)	W. Aust.	Tasmania	F. Ter. (a)	C'wealth.
CHEESE.								
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
In Factories ..	5,593,061	6,797,993	8,287,030	2,539,933	..	607,853	..	23,825,870
On Dairy & other Farms ..	1,169,406	937,030	9,288	250	821	253,607	..	2,370,402
Total ..	6,762,467	7,735,023	8,296,318	2,540,183	821	861,460	..	26,196,272
CONDENSED OR CONCENTRATED MILK.								
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
In Factories ..	12,969,679	44,219,389	9,170,034	..	..	..	..	66,359,102
BACON AND HAM.								
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
In Factories ..	14,930,080	16,675,090	11,638,911	4,935,017	(b) 2,339,691	809,461	..	51,328,250
On Dairy & other Farms ..	1,727,282	2,698,919	516,578	875,599	269,593	318,635	12,236	6,418,842
Total ..	16,657,362	19,374,009	12,155,489	5,810,616	2,609,284	1,128,096	12,236	57,747,092

(a) For year ended 30th June, 1920. (b) A portion only from pigs slaughtered in the State, the balance being imported and subsequently cured.

§ 4. Poultry Farming.

1. **Development of the Industry.**—Poultry stocks are largely maintained by farmers, and production therefrom furnishes a considerable addition to the annual agricultural or dairying returns. During recent years, however, poultry-keeping has assumed an independent position among rural industries, while it is also carried on in conjunction with pig farming. Special poultry farms have been instituted for scientific breeding, and poultry experts engaged by the State Governments give lectures and instruction. Poultry for consumption is extensively reared, and the egg-producing qualities of the birds have also been greatly improved by careful breeding. Co-operative egg-collecting circles have been formed in some districts; eggs are also delivered with the milk and cream to the local butter factories, and thence forwarded to market.

2. **Poultry Products.**—There is some difficulty in obtaining correct figures for the yield of poultry products. The following values are returned :—

ESTIMATED VALUE OF POULTRY AND EGGS, COMMONWEALTH, 1915–16 TO 1919–20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania. (a)	C'wealth.
	£	£	£	£	£	£	£
1915–16 ..	2,146,000	1,747,000	107,370	518,808	184,360	200,000	4,903,538
1916–17 ..	1,908,000	1,714,770	324,958	618,441	201,284	250,000	5,017,453
1917–18 ..	2,082,000	2,160,650	295,882	669,105	188,982	250,000	5,646,619
1918–19 ..	2,501,000	2,738,620	319,602	690,539	189,471	300,000	6,739,232
1919–20 ..	2,814,000	3,579,230	356,590	924,986	191,288	300,000	8,166,094

(a) Estimated.

3. ***Oversea Trade in Poultry Products.***—The imports and exports of eggs shew a balance on the side of imports in 1915–16 and 1916–17. During the next three years, however, the exports exceeded the imports, the value of the excess amounting to £1,028, £577, and £17,231 respectively.

The number of eggs imported into the Commonwealth since 1915–16 amounted to 700,980 dozen. Of this number China has supplied 654,518 dozen; Japan, 30,230 dozen; Straits Settlements, 6,190 dozen; and United Kingdom, 4,230 dozen.

There is at present only a small oversea trade in either live or frozen poultry, the values of the net exports during 1919–20 being £884 and £10,158 respectively.

IMPORTS, EXPORTS, AND NET EXPORTS OF EGGS AND OF LIVE AND FROZEN POULTRY, COMMONWEALTH, 1915–16 TO 1919–20.

Particulars.		1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
			EGGS.			
Imports ..	.. doz.	649,399	35,762	9,171	2,633	4,015
,, ..	.. £	27,791	1,485	434	169	230
Exports ..	.. doz.	3,541	8,651	16,136	8,409	211,034
,, ..	.. £	262	585	1,462	746	17,461
Net Exports	.. doz.	− 645,858	− 27,111	6,965	5,776	207,019
,,	.. £	− 27,529	− 900	1,028	577	17,231
			EGG CONTENTS.			
Imports ..	.. lbs.	37,421	20,452	8,669	344	4,992
,, ..	.. £	4,486	3,480	1,708	94	1,523
Exports ..	.. lbs.	(a)	(a)	(a)	(a)	(a)
,, ..	.. £	481	14,259	1,508	1,823	48,675
Net Exports	.. lbs.	(a)	(a)	(a)	(a)	(a)
,,	.. £	− 4,005	10,779	− 200	1,729	47,152
			LIVE POULTRY.			
Imports ..	.. No.	931	480	753	693	721
,, ..	.. £	1,107	1,127	383	878	1,564
Exports ..	.. No.	1,959	3,105	988	1,699	2,477
,, ..	.. £	781	3,523	823	1,231	2,448
Net Exports	.. No.	1,028	2,625	235	1,006	1,756
,,	.. £	− 326	2,396	440	353	884
			FROZEN POULTRY.			
Imports ..	.. lbs.	6,643	3,096	931	3,752	10,273
,, ..	.. £	293	137	39	208	602
Exports ..	.. pair	2,155	5,400	6,541	8,298	13,346
,, ..	.. £	1,050	3,904	3,549	5,141	10,760
Net Exports	..	(a)	(a)	(a)	(a)	(a)
,,	.. £	757	3,767	3,510	4,933	10,158

NOTE.—The minus sign (−) signifies net imports. (a) Quantity not available.

§ 5. Bee Farming.

1. **The Bee-farming Industry.**—Bee farming, like poultry farming, is ordinarily an adjunct to agricultural or dairying industries. The returns of honey from productive hives during 1919–20 gave an average of 41¼ lbs. per hive, while the average quantity of wax was ¾ lb. per hive.

2. Production of Honey and Beeswax.—The particulars of honey and beeswax production are as given in the following table :—

NUMBER OF HIVES AND PRODUCTION OF HONEY AND BEESWAX, SEASON 1919–20.

State.	Bee Hives.			Honey Produced.		Beeswax Produced.	
	Productive.	Unproductive.	Total.	Quantity.	Value.	Quantity.	Value.
	No.	No.	No.	lbs.	£	lbs.	£
New South Wales ..	17,509	10,350	27,859	472,020	13,374	12,195	1,235
Victoria	27,324	13,646	40,970	1,396,704	36,809	24,735	2,721
Queensland ..	7,770	4,280	12,050	305,586	6,132	7,215	648
South Australia ..	11,719	7,385	19,104	552,976	11,520	7,350	643
Western Australia ..	7,493	1,537	9,030	336,206	5,652	6,611	476
Tasmania	4,019	3,341	7,360	80,468	3,353	2,329	233
Federal Territory ..	25	34	59	320	9	..	..
Commonwealth ..	75,859	40,573	116,432	3,144,280	76,849	60,435	5,956

QUANTITY OF HONEY AND BEESWAX PRODUCED, 1915–16 TO 1919–20.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Ter.	C'wealth.
				HONEY.				
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1915–16	1,585,634	933,933	460,599	358,469	122,125	56,468	4,750	3,521,978
1916–17	1,660,518	1,547,023	352,099	961,723	184,910	84,121	4,780	4,795,174
1917–18	3,863,430	4,974,888	771,015	1,279,433	358,019	124,482	12,081	11,383,348
1918–19	879,356	1,644,447	410,182	1,683,725	415,616	151,605	420	5,185,351
1919–20	472,020	1,396,704	305,586	552,976	336,206	80,468	320	3,144,280
				BEESWAX.				
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1915–16	29,874	18,707	8,890	7,410	4,584	1,397	45	70,907
1916–17	29,387	22,131	7,042	9,793	3,985	2,059	47	74,444
1917–18	53,314	64,980	11,519	12,942	5,459	2,857	28	151,099
1918–19	19,231	25,286	9,099	14,653	6,621	3,087	..	77,977
1919–20	*12,195*	*24,735*	*7,215*	*7,350*	*6,611*	*2,329*	..	*60,435*

The quantity of honey and beeswax produced from year to year naturally varies according to the conditions of the seasons. During the last five years New South Wales has produced 8,460,958 lbs. of honey and 144,001 lbs. of beeswax, while the Victorian figures amounted to 10,496,995 lbs. and 155,839 lbs. respectively for honey and beeswax. These two States together accounted for 67½ per cent. of the total production of honey, and 69 per cent. of that of beeswax. The States following next in order of importance were South Australia, Queensland, and Western Australia.

3. Oversea Trade in Bee Products.—In normal years honey is produced in the Commonwealth in sufficient quantities to supply all local requirements, and a considerable quantity is sent oversea. During the past five years the value of the exports amounted to £357,296, or an annual average of £71,459. *It is believed that this export could be considerably increased.* Australian honey exhibited at the Franco-British Exhibition in London in 1908 obtained the highest award. The more general use of frame hives in recent years has affected the production of wax, and as a result the quantity imported has exceeded that exported during each of the past five years.

IMPORTS, EXPORTS, AND NET EXPORTS OF HONEY AND BEESWAX, COMMONWEALTH, 1915–16 TO 1919–20.

Particulars.		1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
HONEY.						
Imports	lbs.	*59,324*	491	*382*	*150*	1,093
,, ...	£	692	18	12	4	35
Exports	lbs.	25,162	333,407	3,199,691	8,747,760	588,384
,, ...	£	1,045	9,526	79,225	248,685	18,815
Net Exports ..	lbs.	−34,162	332,916	3,199,309	8,747,610	587,291
,, ...	£	353	9,508	79,213	248,681	18,780
BEESWAX.						
Imports	lbs.	38,807	19,195	54,686	36,136	26,149
,, ...	£	2,868	1,544	4,842	3,493	1,969
Exports	lbs.	3,506	7,234	1,471	7,269	15,853
,, ...	£	234	548	134	598	1,467
Net Exports ..	lbs.	−35,301	−11,961	−53,215	−28,867	−10,296
,, ...	£	−2,634	−996	−4,708	−2,895	−502

NOTE.—The minus sign (−) signifies net imports.

§ 6. Summary of Australian Farmyard and Dairy Products.

The value of the principal farmyard and dairy products raised in the Commonwealth in 1919 was as follows :—

VALUE OF THE PRINCIPAL FARMYARD AND DAIRY PRODUCTS RAISED IN THE COMMONWEALTH DURING THE YEAR 1919.

Produce.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Fed. Ter.	C'wealth.
	£	£	£	£	£	£	£	£	£
Milk, consumed as such.. ..	3,243,617	2,762,235	611,478	464,668	344,294	364,969	708	4,266	7,796,255
Butter ..	5,298,462	4,903,442	2,128,716	833,710	172,139	320,640	..	658	13,652,707
Cheese.. ..	339,840	344,262	375,321	104,948	34	35,060	..	..	1,199,465
Condensed and concentrated milk	383,837	1,469,110	287,523	..	..	..	..	..	2,140,470
Bacon and ham..	1,026,512	1,417,465	795,403	344,289	164,906	66,022	..	754	3,815,431
Poultry and eggs	2,814,000	3,579,290	356,590	924,986	191,288	300,000	..	..	8,166,094
Honey and wax	14,609	[illegible]	6,780	12,163	6,729	3,586	..	9	82,805

§ 7. Summary of Australian Farmyard and Dairy Products Exported, 1915-16 to 1919-20.

The quantities and values of Australian farmyard and dairy products exported from the Commonwealth during each of the last five years are shewn below :—

QUANTITIES OF AUSTRALIAN FARMYARD AND DAIRY PRODUCTS EXPORTED FROM THE COMMONWEALTH DURING EACH OF THE YEARS 1915-16 TO 1919-20.

Products.		1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
Beeswax	lbs.	3,506	7,234	1,450	7,252	14,436
Butter	"	16,722,010	74,678,634	72,277,526	41,114,764	89,006,804
Cheese	"	128,229	10,569,279	8,426,641	2,303,276	7,616,412
Egg albumen and yolk		(a)	(a)	(a)	(a)	(a)
Eggs	doz.	3,469	8,386	15,922	8,359	210,784
Feathers, undressed		(a)	..	..	..	(a)
Honey	lbs.	25,162	833,407	8,199,691	8,747,760	688,384
Lard	"	342,569	1,681,918	1,465,352	6,016,383	7,981,014
Meats—						
Bacon and ham	"	556,251	1,005,171	5,067,946	5,636,891	3,040,983
Frozen poultry	pair	2,131	5,400	6,541	8,298	13,346
Frozen pork	lbs.	2,788	32,681	262,503	839,557	371,397
Milk, concentrated and preserved	"	708,643	15,777,333	25,581,708	27,934,998	35,548,082
Pigs, living	No.	64	19	36	60	164
Poultry, living	"	1,939	8,105	983	1,699	2,477

(a) Quantity not available.

VALUE OF AUSTRALIAN FARMYARD AND DAIRY PRODUCTS EXPORTED FROM THE COMMONWEALTH DURING THE YEARS 1915-16 TO 1919-20.

Products.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
Beeswax	234	548	133	596	1,325
Butter	1,022,742	5,301,273	4,904,417	3,193,086	3,301,695
Cheese	7,915	419,628	350,791	118,850	377,398
Egg albumen and yolk	4	8,327	854	1,823	48,675
Eggs	259	573	1,450	743	17,434
Feathers, undressed	45	..	..	61	793
Honey	1,045	9,526	79,225	248,685	18,815
Lard	13,735	56,126	56,292	205,675	374,641
Meats—					
Bacon and ham	33,583	60,358	321,573	378,685	258,890
Frozen poultry	1,033	3,904	3,549	5,141	10,760
Frozen pork	108	1,841	11,915	40,325	19,140
Milk, concentrated and preserved	24,589	531,976	1,025,895	1,091,889	1,605,161
Pigs, living	582	146	209	479	1,044
Poultry, living	766	3,523	819	1,231	2,449
Total	1,106,640	6,397,249	6,757,122	5,287,269	6,038,228

§ 8. British Imports of Dairy Products.

1. **Value of Britain's Imports of Dairy Products.**—In the following table are given *the quantities and values of the principal dairy products imported into the United* Kingdom during the years 1915 to 1919 :—

PRINCIPAL DAIRY PRODUCTS IMPORTED INTO THE UNITED KINGDOM, 1915 TO 1919.

Products.		1915.	1916.	1917.	1918.	1919.
Butter	cwts.	3,858,855	2,175,415	1,806,516	1,578,658	1,560,204
"	£	27,022,745	18,964,002	18,895,707	19,769,738	19,854,427
Cheese	cwts.	2,726,536	2,604,124	2,946,066	2,357,103	2,118,250
"	£	11,107,100	12,945,765	19,462,390	15,905,858	15,170,620
Milk—Concentrated and preserved	cwts.	1,661,321	1,752,292	1,700,511	2,707,761	3,347,645
" " "	£	3,551,592	5,120,879	6,623,666	13,472,544	17,089,310
Bacon and ham	cwts.	8,003,835	8,990,791	7,747,740	12,028,505	10,094,352
" "	£	30,721,776	41,223,147	48,769,759	103,410,221	69,681,616
Pork (a)	cwts.	238,450	334,284	194,177	111,345	160,263
"	£	650,763	1,301,209	899,346	763,484	1,075,568

(a) Frozen, chilled, and salted.

2. **Butter.**—Australia has for many years past contributed large quantities of the butter annually imported into the United Kingdom. During the past five years the value of the imports from Australia has considerably increased, amounting in 1919 to £5,251,176, which was the largest sum paid by Great Britain to any country for butter during the year.

IMPORTS OF BUTTER INTO THE UNITED KINGDOM, 1919.

Country from which Imported.	Quantity.	Value.	Country from which Imported.	Quantity.	Value.
	Cwt.	£		Cwt.	£
Australia ..	**417,371**	**5,251,176**	Norway ...	6,240	86,560
New Zealand ..	318,872	3,910,432	Foreign Countries n.e.i. ..	1,645	20,839
Argentine Republic	265,675	3,344,213	British Possessions n.e.i. ..	3,324	41,268
United States ..	216,495	2,746,908			
Canada	33,337	417,588			
Denmark ..	290,291	3,947,835			
Russia	6,954	87,608	Total ..	1,560,204	19,854,427

The average price of the best quality Australian butter in London during the past ten years is shewn in the following table:—

AVERAGE PRICE OF AUSTRALIAN BUTTER IN LONDON, 1910 TO 1919.

Year.	Average Top Price per Cwt.	Year.	Average Top Price per Cwt.
	s. d.		s. d.
1910	112 0	1915	144 6
1911	114 0	1916	169 6
1912	119 0	1917	(a) 206 0
1913	114 6	1918	(b) 252 0
1914	119 0	1919	(b) 252 0

(a) Proclaimed price. (b) Flat rate for all imported butter.

The British Government under contract purchased the surplus output of Australian butter during the period from 1st July, 1918, to 31st July, 1920. The price paid was 175s. per cwt. for butter scoring 90 points, a shilling per cwt. being added or deducted as the grading score exceeded or came below that standard. On the 1st August, 1920, this contract was extended for a further period, the price of butter having been increased to 240s. per cwt., subsequently raised to 272s., the grading price being likewise increased to 1s. 6d. per cwt. This contract terminated on 31st March, 1921, after which date butter sales again reverted to the open market in the United Kingdom.

3. **Cheese.**—The value of the United Kingdom cheese imports in 1919 was £15,170,620, of which nearly eight and a half million pounds' worth was received from New Zealand, and nearly five million pounds' worth from Canada. Small experimental shipments from Australia were made in 1908 and following years, fair prices being realised. The value of the imports from Australia has increased from £91,729 in 1915 to £830,935 in 1919.

4. ***Bacon and Ham.***—Of a total import of bacon and ham valued in 1919 at £89,681,916, the United Kingdom received imports to the value of £67,379,260 from the United States, and £19,534,159 from Canada. The import from Australia was small, experimental shipments only having been made during recent years.

5. **Pork.**—The total value of the United Kingdom imports of pork (including refrigerated, frozen, and salted) was £1,075,563 in 1919. There was no import from Australia, the chief supplying countries being Argentine Republic and the United States.

6. **Other Products.**—There is practically no United Kingdom import from Australia of beeswax, poultry, game, lard, or eggs, but honey to the value of £305,056, and frozen rabbits to the value of £553,106 were received from the Commonwealth in 1919.

§ 9. Graphical Representation of Dairy Production.

Two graphs shewing respectively the development in dairy production and in the exports of butter will be found on page 242.

SECTION X.

FORESTS, FORESTRY, AND FORESTAL PRODUCTS.

§ 1. The Forests of Australia.

1. **Extent of Forests.**—Although no definite survey of forest lands has been made on a uniform basis for the different States of Australia, the following table gives the results of careful estimates made for each State :—

FOREST RESERVES AND FOREST AREAS, STATE AND COMMONWEALTH, 1919.

State.	Area of Forest Reserves.		Total Forest Area.	Percentage of State Area.		Percentage of Commonwealth Area.	
	Permanent. (a)	Temporary. (b)		Specially Reserved.	Total Forest.	Specially Reserved.	Total Forest.
	Acres.	Acres.	Acres.	%	%	%	%
c New South Wales	5,085,050	1,746,069	11,000,000	3.45	5.55	0.36	0.57
Victoria ..	4,092,625	125,500(*f*)	11,800,000	7.49	20.98	0.22	0.62
Queensland ..	*1,122,129*	*2,671,139*	*40,000,000*	*0.88*	*9.32*	*0.20*	*2.10*
South Australia	161,027	18,700(*f*)	3,800,000	0.07	1.56	0.01	0.20
Western Australia	10,008	1,612,000(*f*)	15,900,000(*d*)	0.26	2.55	0.09	0.84
Tasmania ..	..	1,028,000	10,000,000	6.13	59.60	0.05	0.53
(*e*)Commonwealth	10,470,839	7,201,408	92,500,000	..	..	0.93	4.86

(*a*) Reservations in perpetuity. (*b*) Reservations which may be cancelled at any time. (*c*) Inclusive of Federal Area. (*d*) S.W. Division only. (*e*) Exclusive of Northern Territory and portion of Western Australia. (*f*) Figures uncertain.

The actual area of wooded land is probably in all cases much greater than that shewn above. For example, that of Western Australia is estimated at 97,900,000 acres; Queensland has probably 143,000,000 acres; and Victoria has a considerable extent of "Mallee" country not included in the above estimate. The basis of estimation for each **State in any case cannot be regarded as identical. Considerable areas not included as forest lands possess timber of local value.**

The absolute and relative forest areas of Australia and other countries are shewn in the table on the next page.

RELATIVE AREAS OF FOREST LANDS, AUSTRALIA AND OTHER COUNTRIES.(a)

Country.	Total Wooded Area.	Percentage of Total Area.	Country.	Total Wooded Area.	Percentage of Total Area.
	Sq. Miles.	%		Sq. Miles.	%
Australia	**144,530**	**4.86**	Rumania	10,836	21.36
New Zealand ..	26,562	25.63	Sweden	90,241	52.20
United Kingdom ..	4,740	3.82	Norway	26,685	21.50
France	38,620	18.65	Russia in Europe ..	859,375	39.00
Algeria	10,249	2.98	United States ..	860,000	24.08
Germany	54,015	25.90	Canada	625,000	17.34
Switzerland	3,290	20.60	Cape of Good Hope ..	537	0.19
Italy	17,613	15.92	British India ..	249,867	22.85
Austria	37,700	31.66	Japan	71,890	48.33
Hungary	34,750	29.30			

(a) Areas as before the war.

2. **Distribution of Timber.**—The characteristics of the forest areas are given in some detail for each State in Official Year Book No. 6, pp. 446–9. The more conspicuous timber regions of Australia as a whole are the eastern and southern portions, including Tasmania, and, again, the south-western portion northwards and eastwards from Cape Leeuwin. In regard to distribution, on the eastern side of the continent the largest timber is found on the crests and coastal slopes of the mountain ranges, but in the south-west, in addition to the vegetation between mountains and sea, a large area of forest stretches inland from the coastal ranges. The hills encircling Adelaide and Yorke and Eyre Peninsulas also bear good forest. The Kimberley district is timbered, and in the Northern Territory and round the shores of the Gulf of Carpentaria there are considerable forest areas. In the coastal regions of parts of West and North-West Australia, and along the shores of the Great Australian Bight and Encounter Bay, there is little forest. The areas in the centre of the continent are thinly timbered.

Special articles relating to Australian Eucalyptus timbers will be found in Official Year Book No. 10, pp. 85–98.

§ 2. Forestry.

1. *Objects.*—Economic forestry, aiming at the conservation of forestal wealth by safeguarding forests against inconsiderate destruction, and by the suitable re-afforestation of denuded areas, is essential to the preservation of industries dependent upon an adequate supply of timber, and to the perpetuation of a necessary form of national wealth. Though in Australia large areas of virgin forests still remain, the inroads made by timber getters, by agriculturists, and by pastoralists—who have destroyed large areas by "ring-barking"—are considerable, and it is not unlikely that climatological changes are caused thereby. It is stated that beneficial consequences follow on the planting of trees on denuded lands, or along eroding coasts, and that a forest covering beneficially regulates the effects of rainfall.

Successful planting of exotics in various parts of the Commonwealth has demonstrated that the Australian climate is suitable for the cultivation of a large number of the most valuable and beautiful of the world's timber trees.

2. **Forestry Departments.**—Each State of the Commonwealth has organised a separate forestry department or branch of service specially charged with forestal matters. Forest improvement work is carried on, areas of young forest being cleaned up by the felling and removal of stunted, diseased and suppressed growth, the burning of débris and the making of fire breaks. Provision is made for effective patrols in forest districts to check the ravages caused by fires, often due, it is believed, to carelessness.

3. Sylvicultural Nurseries and Plantations.—Recognition of the necessity for systematic sylviculture has led to the creation in most of the States of a number of sylvicultural nurseries and plantations. The locality of these establishments, together with a brief statement of the nature of their activities, is given in previous issues of the Year Book. (Reference may be made to Official Year Book No. 6, pp. 451–3.) Details regarding forest nurseries and plantations are as follows:—

FOREST NURSERIES AND PLANTATIONS, 1919.

Particulars.	New South Wales. (a)	Victoria.	Q'land.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
State Forest Nurseries—							
Number	1(b)	6	5	7	1	..	19(d)
Area .. (acres)	126(b)	52	3	7	17	..	79(d)
Plantations—							
Number	(c)	15	24	..	2	..	41(d)
Area	(c)	11,375	310	..	624	..	12,309(d)
Number of persons employed in Forestry Departments—							
Administrative ..	37	17	45	1	1	1	102
Professional	7	6	3	1	1	1	19
General	213	142	114	132	56	2	659

(a) Year ended 30th June. (b) Figures for previous year. (c) Not available. (d) Exclusive of New South Wales.

4. Revenue and Expenditure.—The revenue and expenditure of the State Forestry Departments from 1915–16 to 1919–20 are given below:—

REVENUE OF STATE FORESTRY DEPARTMENTS, 1915–16 TO 1919–20.

State.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
New South Wales	68,107	67,273	70,969	97,592	147,041
Victoria	59,189	50,615	55,917	57,731	67,298
Queensland	70,691	60,865	66,660	71,985	100,584
South Australia	5,981	10,259	14,279	23,880	22,003
Western Australia	45,726	19,058	23,866	41,015	45,278
Tasmania	3,615	3,860	3,860	3,860	7,340
Commonwealth	253,309	211,930	235,582(a)	296,063	389,544

(a) Including Northern Territory, £31.

EXPENDITURE OF STATE FORESTRY DEPARTMENTS, 1915–16 TO 1919–20.

State.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
New South Wales	50,531	73,762	77,688	121,162	134,997
Victoria	65,142	53,551	68,567	60,193	64,213
Queensland	7,416	9,616	13,930	21,877	35,158
South Australia	24,892	22,571	21,381	21,968	26,404
Western Australia	8,870	9,807	10,363	23,656	15,331
Tasmania	683	682	1,204	1,204	1,433
Commonwealth	157,534	169,889	193,123	250,060	277,536

5. **Instruction in Scientific Forestry.**—Several schools have been established in which, while general scientific instruction is imparted, special attention is paid to forestry. In the classes, theoretical forestry, botany, geology, physics, land surveying, etc., are taught; while in outside work trainees receive practical instruction in the preparation of seed-beds, seed-sowing, propagation, planting out, pruning, the general care and improvement of plantations and natural forests, and the employment of timber to the best advantage. The desire is to give the prospective forester a thorough training in all branches of the work. Courses of lectures are also given at various centres, and, at some of the higher technical schools, members of the forest staffs are afforded opportunities of qualifying in special subjects. Methods of training, etc., are not uniform in the various States, and one of the prime objects of a Conference held in 1916 was the evolution of a system which, while aiming at uniformity, would be sufficiently elastic to provide for special needs in any State.

6. **Forest Congresses.**—Interstate Conferences on Forestry were held in 1911 and 1912, chiefly with a view of securing uniformity of management. An International Forest Congress was held at Paris in June, 1913, when a Professor of South Kensington Imperial College represented the Commonwealth Government. The papers and reports dealt chiefly with the threatened shortage of timber, and the measures necessary to avert the danger. An Imperial Forestry Conference was held in London in the summer of 1920, at which also Australia was represented. Important Interstate Forestry Conferences were held at Adelaide in May, 1916; at Perth in November, 1917; and at Hobart in April, 1920.

§ 3. Commercial Uses of Principal Australian Timbers.

1. **General.**—The uses of the more important of Australian timbers are many and various, and are indicated in previous issues of this work. (See Official Year Book No. 6, pp. 454–6; and Official Year Book No. 10, Section III., § 7 and 8.)

The Commonwealth Government utilises Australian woods for rifle stocks, telephone switch boards, aeroplane parts, etc. Queensland maple (*Flindersia chatawaiana*) is largely used for rifle stocks, and coachwood is available for the same purpose. Australian timber is also seasoned and stored, depots having been established by the Commonwealth Government at Canberra and Newington in New South Wales and at Maribyrnong in Victoria; by States Governments at the principal centres; and by private enterprise as required.

2. **Uniformity in Nomenclature.**—Unfortunately the vernacular names applied to the gums, ironbarks, etc., in the various States, and even in different parts of the same State, do not always refer to identical timbers. The resulting confusion has not only been productive of loss, but it has, to some extent, prejudicially affected the timber trade. This subject is referred to at some length in the special article, "Australian Eucalyptus Timbers," in Section III., § 7 and 8, in Official Year Book No. 10. At the 1916 Forestry Conference alluded to above, the matter came up for special consideration, and steps were taken to establish a uniform nomenclature.

§ 4. Forestal Industries and Production.

1. **Timber.**—Estimates of the quantity and value of local timber sawn and hewn in each State are given hereunder :—

QUANTITIES OF LOCAL TIMBER SAWN OR HEWN IN EACH STATE OF THE COMMONWEALTH, 1914 TO 1920.

State.	1914.	1915.	1916-17.	1917-18.	1918-19.	1919-20.
	sup. feet.	*sup. feet.*	*sup. feet.*	*sup. feet.*	*sup. feet.*	*sup. feet.*
New South Wales	140,940,000	115,201,000	125,243,000	126,745,000	131,617,000	155,114,000
Victoria ..	84,374,000	62,589,000	70,038,000	78,984,000	91,540,000	99,142,000
Queensland ..	168,456,000	144,950,000*a*	121,851,000*a*	111,663,000*a*	118,436,000*a*	144,389,000*a*
South Australia ..	2,617,000	2,348,000	3,729,000	3,425,000	5,223,000	6,178,000
Western Australia	227,297,000	123,494,000*a*	100,356,000*a*	85,218,000*a*	94,990,000*a*	131,477,000*a*
Tasmania ..	52,182,000	47,890,000*a*	52,019,000*a*	44,986,000*a*	49,814,000*a*	56,809,000*a*
Commonwealth	675,866,000	496,472,000	473,236,000	451,096,000*b*	491,620,000	593,109,000

(*a*) Year ended 31st December. (*b*) Including Northern Territory, 75,000 sup. feet.

2. **Other Forest Produce.**—(i) *General.* No satisfactory estimates of the total value of forest production are available. Large returns are credited to firewood, but these are subject to a wide range of uncertainty.

(ii) *Eucalyptus Oil.* A considerable quantity of eucalyptus oil is produced each year, chiefly in Victoria, the product being used as a drug and also in connexion with ore flotation processes. Complete information regarding local production and consumption is not available. Oversea exports amounted in 1914-15 to £21,000, in 1915-16 to £36,000, in 1916-17 to £60,000, in 1917-18 to £77,000, in 1918-19 to £84,000, and in 1919-20 to £92,000, the bulk of the product being forwarded to the United Kingdom. Large quantities have also been exported to the United States.

(iii) *Tan Barks.* In addition to the wattle bark, mentioned at the close of this section, a valuable tan bark is obtained from the mallet (*E. occidentalis*) of Western Australia. Its exploitation has, however, been so rapid that the available supply is now comparatively small.

§ 5. Oversea Trade.

1. **Imports.**—The quantity and value of timber imports during the four years 1916-17 to 1919-20 inclusive are shewn according to countries of origin in the following tables. The figures in the first table are exclusive of a few items such as veneers, etc. :—

IMPORTS OF DRESSED TIMBER, COMMONWEALTH, 1916-17 TO 1919-20.

Country of Origin.	Quantity.				Value.			
	1916-17.	1917-18.	1918-19.	1919-20.	1916-17.	1917-18.	1918-19.	1919-20.
	sup. ft.	sup. ft.	sup. ft.	sup. ft.	£	£	£	£
United Kingdom ..	1,109	100	20	105,970	51	18	3	584
New Zealand ..	70,817	163,979	9,135	..	1,070	2,064	206	..
Other British Countries	22,230	40,975	31,664	94,726	252	461	858	1,206
Norway	3,245,724	400	..	9,433,921	32,711	2	..	201,593
Sweden	..	..	532,845	4,251,220	..	..	9,900	87,757
United States ..	481,603	107,323	73,459	66,863	8,023	2,658	2,621	2,793
Other Foreign Countries ..	20,727	10,838	13,294	2,329	398	207	641	109
Total ..	3,841,710	323,615	660,917	13,955,028	42,505	5,410	13,729	294,044

The bulk of the imports of dressed timbers normally comes from Norway, Sweden, and the United States. War conditions caused some dislocation of trade during the period covered by the table. Practically the whole of this timber consists of softwoods—deal and pine—used for lining, weatherboards, flooring, shelving, doors, box-making, etc.

IMPORTS OF UNDRESSED TIMBER, INCLUDING LOGS, COMMONWEALTH, 1916-17 TO 1919-20.

Country of Origin.	Quantity.				Value.			
	1916-17.	1917-18.	1918-19.	1919-20.	1916-17.	1917-18.	1918-19.	1919-20.
	sup. ft.	sup. ft.	sup. ft.	sup. ft.	£	£	£	£
United Kingdom	56,459	6,144	800	33,861	438	116	3	1,803
Canada ..	752,571	11,737,582	2,204,774	5,766,398	4,479	74,959	22,250	90,882
India ..	228,601	109,486	89,436	129,395	6,618	5,113	3,687	8,022
New Zealand ..	77,557,033	69,305,936	9,027,859	56,470,627	536,608	571,599	632,613	673,922
Straits Settlements ..	282,300	254,325	201,325	817,675	1,586	2,211	1,376	8,147
Other British Countries ..	766,230	275,623	186,607	802,860	4,135	1,339	1,382	8,504
Japan ..	7,178,349	1,988,267	2,927,688	6,362,400	115,930	40,843	68,377	186,623
Java	4,683	7,495	13,399	578,538	136	84	173	6,436
Norway ..	69,695	..	10,140	44,600	570	..	90	836
Sweden ..	36,500	..	..	165,934	604	..	..	2,609
United States ..	109,620,926	85,877,463	79,013,943	70,976,919	680,077	637,960	1,023,391	1,069,341
Other Foreign Countries ..	51,382	94,774	106,866	1,059,665	955	1,331	3,397	19,781
Total ..	196,604,720	169,657,076	143,782,637	143,208,872	1,352,136	1,335,555	1,756,739	2,078,906

By far the larger proportion of the undressed timber imports also consists of softwoods such as yellow pine, redwood, and oregon from the United States and Canada; kauri, rimu, and white pine from New Zealand; pine from Japan, and (prior to the war) red deals from Russia, Norway, and Sweden. Amongst the hardwoods imported the principal are oak from the United States and Japan, and teak from India.

2. **Exports.**—The quantity and value of undressed (sawn) timber exported from 1915-16 to 1919-20 are given below, the countries of destination being also shewn:—

EXPORTS OF UNDRESSED TIMBER (SAWN), COMMONWEALTH, 1915-16 TO 1919-20.

Country to which Exported.	Quantity. (a)					Value.				
	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	1,000 sup. ft.	1,000 sup. ft.	1,000 sup. ft.	1,000 sup. ft.	1,000 sup. ft.	£	£	£	£	£
United Kingdom	5,741	1,478	27	536	374	45,286	10,118	428	4,458	4,612
Canada ..	19	260	816	103	59	321	3,796	6,504	2,364	1,405
Union of S. Africa	23,100	11,944	6,154	10,925	32,426	162,788	83,598	43,012	75,314	234,589
Ceylon	30	5,444	..	..	1,567	203	36,041	..	..	10,448
Egypt	418	..	..	..	2,171	3,638	..	..	..	14,472
Fiji	780	839	916	418	739	5,830	8,415	12,614	4,338	11,178
India	..	..	..	100	467	..	..	..	650	3,500
Mauritius ..	655	..	277	..	458	4,368	..	2,310	..	3,342
New Zealand ..	15,912	12,666	5,993	5,374	12,263	140,507	109,323	63,802	80,498	168,329
Ocean Island ..	197	..	..	..	..	1,873	..	..	..	..
Papua ..	205	277	132	98	140	2,412	5,278	1,720	1,861	3,155
Straits Settlements	10	2	59	20	..	100	34	899	135	..
Other British Countries ..	590	510	310	459	936	4,987	6,211	3,920	6,354	16,507
Belgium ..	..	..	..	..	1	..	..	..	..	27
China	..	..	..	..	760	..	..	..	..	5,996
Japan	1	70	704	105	355	15	702	11,827	2,276	6,921
Marshall Islands	5	2	4	15	..	59	22	53	250	2
Bismarck Archipelago ..	41	188	99	41	226	580	2,024	1,378	868	4,209
New Caledonia ..	33	25	298	98	155	417	300	3,710	1,502	3,081
Portuguese E. Africa	606	..	..	..	..	4,039	..	..	..	..
U.S. of America ..	469	1,433	4,060	2,189	275	6,826	21,254	75,674	41,867	6,568
Other Foreign Countries ..	124	194	170	275	85	1,401	2,522	2,222	4,495	1,697
Total ..	48,940	35,232	19,609	20,750	53,457	385,653	299,738	230,073	227,230	500,148

(a) Exclusive of timber not measured in super. feet.

As the table shews, the bulk of the exports of undressed timber was consigned to South Africa, New Zealand, and (except for latest years) the United Kingdom, and consisted of Australian hardwoods, which have earned an excellent reputation for such purposes as railway sleepers, harbour works, wood paving, etc. There was a notable increase in the quantity supplied to the United States in the later war years.

The quantities of timber imported and exported during the last five years are given in the next table:—

QUANTITIES OF TIMBER IMPORTED INTO AND EXPORTED FROM THE *COMMONWEALTH, 1915-16 TO 1919-20.*

Description.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
IMPORTS.					
Veneers .. sup. feet	430,060	499,514	459,307	509,855	592,434
Dressed .. ,,	28,653,427	8,014,939	536,124	1,139,401	14,211,023
Undressed .. ,,	223,278,433	195,830,413	169,378,755	143,754,858	140,516,943
Logs .. ,,	8,335,446	774,316	278,320	27,779	2,691,929
Palings .. No.	..	..	..	..	..
Pickets .. ,,	808,342	611,399	688,822	261,886	915,582
Shingles .. ,,	2,677,620	2,083,408	2,391,326	567,200	606,186
Staves—					
Dressed, etc. ,,	67,380	12,764	8,964	2,752	1,035
Undressed ,,	591,750	152,283	575,300	666,036	1,527,357
Laths for blinds ,,	(a)	(a)	(a)	..	..
,, other ,,	17,029,168	11,419,145	17,568,419	6,610,148	8,950,913
Spokes, rims, felloes ,,	(a)	(a)	(a)	(a)	(a)
Doors .. ,,	1,925	300	666	78	371
Architraves, mouldings, etc. .. lin. feet	6,202	..	..	..	2,150
Other	(a)	(a)	(a)	(a)	(a)
EXPORTS.					
Veneers	..	..	..	..	..
Dressed .. sup. feet	498,074	322,058	297,341	251,041	720,635
Undressed .. ,,	48,939,938	35,332,403	19,807,434	20,750,023	53,456,799
Logs .. ,,	226,400	197,721	298,460	184,398	190,685
Palings .. No.	232,240	603,569	121,506	60,365	120,560
Pickets .. ,,	800	..	..	..	..
Shingles .. ,,	..	..	100,000	7,090	152,675
Staves—					
Dressed, etc. ,,	..	..	1,230	..	..
Undressed ,,	..	..	..	..	..
Laths for blinds ,,	(a)	(a)	(a)	(a)	(a)
,, other ,,	111,600	63,000	92,160	2,111	280,420
Spokes, rims, felloes ,,	(a)	(a)	(a)	(a)	(a)
Doors .. ,,	(a)	(a)	(a)	(a)	(a)
Architraves, mouldings, etc. .. lin. feet	41,673	40,768	48,265	80,186	149,465
Other	..	..	..	..	..

(a) Quantity not available.

QUANTITIES OF TIMBER IMPORTED AND EXPORTED, ETC.—*continued.*

Description.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
		EXCESS OF IMPORTS OVER EXPORTS.			
Veneers .. sup. feet	430,060	499,514	459,307	509,855	592,434
Dressed .. ,,	28,155,353	7,692,881	238,783	888,360	13,490,388
Undressed	174,338,495	160,498,010	149,571,321	123,004,835	87,060,144
Logs .. .,	8,109,046	576,595	– 20,140	– 156,619	2,501,244
Palings .. No.	– 232,240	– 603,569	– 121,506	– 60,365	– 120,560
Pickets .. ,,	807,542	611,399	688,822	261,886	915,582
Shingles .. ,,	2,677,620	2,083,408	2,291,326	560,110	453,511
Staves—					
Dressed, etc. ,,	67,380	12,764	7,734	2,752	1,035
Undressed ,,	591,750	152,283	575,300	666,036	1,527,357
Laths for blinds ,,	(a)	(a)	(a)	(a)	(a)
,, other ,,	17,517,568	11,356,145	17,476,259	6,608,037	8,670,493
Spokes, rims, felloes ,,	(a)	(a)	(a)	(a)	(a)
Doors .. ,,	(a)	(a)	(a)	(a)	(a)
Architraves, mouldings, etc. .. lin. feet	– 35,471	– 40,768	– 48,265	– 80,186	– 147,315
Other	(a)	(a)	(a)	(a)	(a)

(a) Quantity not available. NOTE.—The minus sign (–) signifies excess of exports over imports.

The values of the timber imports and exports during the last quinquennium are shewn hereunder :—

VALUE OF TIMBER IMPORTED INTO AND EXPORTED FROM THE COMMONWEALTH, 1915-16 TO 1919-20.

Description.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
		IMPORTS.			
	£	£	£	£	£
Veneers	20,610	25,670	21,613	33,540	39,314
Dressed	243,155	74,477	6,672	21,309	296,480
Undressed	1,383,140	1,346,497	1,333,382	1,754,592	2,027,561
Logs	29,326	5,639	2,173	2,147	51,355
Palings	..	..	..	..	..
Pickets	4,030	2,174	4,040	3,037	10,626
Shingles	3,487	3,132	4,569	1,476	2,933
Staves— ..					
Dressed, etc. ..	1,907	337	260	53	21
Undressed, ..	11,164	3,538	3,516	6,836	19,296
Laths for blinds ..	..	..	..	..	2
,, other ..	14,809	9,230	20,729	10,119	18,142
Spokes, rims, felloes ..	11,239	6,001	6,125	4,234	9,004
Doors	910	103	201	256	101
Architraves, mouldings, etc.	22	..	..	..	6
Other	90	2,030	1,246	938	1,880
Total value ..	1,723,889	1,478,828	1,404,526	1,838,537	2,476,711

VALUE OF TIMBER IMPORTED AND EXPORTED, ETC.—*continued.*

Description.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
			EXPORTS.		
	£	£	£	£	£
Veneers	..	..	..	..	..
Dressed	7,190	4,804	5,314	6,659	19,234
Undressed	385,650	289,738	230,073	227,230	500,148
Logs	1,716	1,648	2,345	1,159	2,733
Palings	1,225	4,176	889	717	1,071
Pickets	7	..	..	..	..
Shingles	..	..	139	41	265
Staves—					
Dressed, etc. ..	..	..	127	..	..
Undressed ..	..	..	..	..	..
Laths for blinds ..	152	29	..	92	241
,, other ..	245	147	308	12	817
Spokes, rims, felloes ..	6,570	4,333	5,259	3,562	6,189
Doors	554	354	..	307	1,358
Architraves, mouldings, etc.	152	164	257	608	1,962
Other	..	..	..	..	..
Total value ..	403,461	305,393	244,711	240,387	534,018
		EXCESS OF IMPORTS OVER EXPORTS.			
Veneers	20,610	25,670	21,613	33,540	39,314
Dressed	235,965	69,673	1,358	14,650	277,246
Undressed	997,490	1,056,759	1,103,309	1,527,362	1,527,403
Logs	27,610	3,091	−172	988	48,622
Palings	−1,225	−4,176	−889	−717	−1,071
Pickets	4,023	2,174	4,040	3,037	10,626
Shingles	3,487	3,132	4,430	1,435	2,668
Staves—					
Dressed, etc. ..	1,907	337	133	53	21
Undressed ..	11,164	3,538	3,516	6,836	19,296
Laths for blinds ..	−152	−29	..	−92	−239
,, other ..	14,564	9,083	20,421	10,107	17,325
Spokes, rims, felloes ..	4,669	1,668	866	672	2,815
Doors	356	−251	201	−51	−1,257
Architraves, mouldings, etc.	−130	−164	−257	−608	−1,956
Other	90	2,030	1,246	938	1,880
Total value ..	1,320,428	1,173,435	1,159,815	1,596,150	1,942,693

NOTE.—The minus sign (−) signifies excess of exports over imports.

A fair amount of sandalwood is exported each year, principally from Western Australia, and to a smaller extent from Queensland. The largest proportion of this product is consigned to Hong Kong, China, and the Straits Settlements.

EXPORTS OF SANDALWOOD, 1915-16 TO 1919-20.

Country to which Exported.	Quantity.					Value.				
	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	cwt.	cwt.	cwt.	cwt.	cwt.	£	£	£	£	£
Hong Kong ..	96,949	130,314	102,825	124,500	187,260	51,087	71,460	76,093	92,518	174,659
Straits Settlements	10,620	10,308	19,576	33,980	81,620	6,410	6,504	12,236	22,063	71,522
Other British Possessions ..	8,576	7,100	2,000	2,440	2,360	4,602	4,429	1,275	1,588	2,245
China ..	18,850	9,660	14,785	29,480	26,000	9,316	5,554	9,857	18,767	18,307
Other Foreign Countries ..	120	120	1,342	5,420	700	78	102	4,481	4,009	626
Total ..	135,115	157,502	140,528	195,820	297,940	71,493	88,049	103,942	138,945	267,359

Tanning bark figures both as an export and import in the Commonwealth trade returns, as thè following tables show :—

EXPORTS OF TANNING BARK, 1915–16 TO 1919–20.

Country to which Exported.	Quantity.					Value.				
	1915–16.	*1916–17.*	*1917–18.*	*1918–19.*	*1919–20.*	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	cwt.	cwt.	cwt.	cwt.	cwt.	£	£	£	£	£
United Kingdom	3,018	6,797	..	1,220	3,700	1,434	3,103	..	860	2,561
New Zealand ..	51,138	41,098	95,192	27,320	60,900	23,574	20,703	45,007	13,801	37,616
Other British Possessions ..	714	205	208	..	..	371	107	72	..	..
Foreign Countries	*39,598*	*11,199*	*1,745*	*60*	*7,780*	*16,354*	*5,001*	*611*	*14*	*4,050*
Total ..	94,468	59,299	97,145	28,600	72,380	41,733	28,914	45,690	14,675	44,227

Prior to the war there was a fairly considerable export of tan bark to Germany and also to Belgium. The exports westward have naturally dwindled away, and at the present time New Zealand receives the largest share of the available export, while there is also some trade with Japan, China, and Java. During recent years the largest proportion of the exports consisted of wattle bark from Tasmania, Viotoria and New South Wales.

A comparison of the imports and exports oí tanning bark during the last five years is given in the next table :—

TANNING BARK IMPORTED INTO AND EXPORTED FROM THE COMMONWEALTH, 1915–16 TO 1919–20.

Particulars.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
QUANTITIES—	cwt.	cwt.	cwt.	cwt.	cwt.
Imports	122,188	148,206	71,133	102,480	78,800
Exports	94,468	59,299	97,145	28,600	72,380
Excess of exports over imports	– 27,720	– 88,907	26,012	– 73,880	– 6,420
VALUES—	£	£	£	£	£
Imports	47,698	51,461	24,711	43,319	33,733
Exports	41,733	28,914	45,690	14,675	44,227
Excess of exports over imports	– 5,965	– 22,547	20,979	– 28,644	10,494

NOTE.—The minus sign (–) denotes excess of imports.

The imports consist almost exclusively of wattle bark from the plantations in South Africa. One variety of Australian wattle is found to flourish in the sandy belts near the coast, but it is the *Acacia decurrens*, var. *mollis*, which is chiefly relied upon for the production of wattle bark in the South African plantations. Seed has been tried from New South Wales, Tasmania, and Victoria, but it is stated that most of the seed is obtained from the best wattle bark areas in eastern Tasmania and western Victoria.

Two reasons are given to account for the success of the industry in South Africa. (i) It is found that the treeless, grassy highlands of Natal are specially suitable for wattle culture, and the trees can therefore be grown in rows and economically attended to, while the necessary bark sheds and other appurtenances can be placed in the most advantageous positions. (ii) There is an abundance of cheap and efficient Hindoo labour available for employment on the plantations.

SECTION XI.

FISHERIES AND PISCICULTURE.

§ 1. Commercial Fisheries.

1. **Fish Stocks.**—Australasia possesses an abundant and varied fish fauna, which embraces both tropical and temperate varieties and includes destructive as well as valuable species. In rivers and lakes both indigenous and imported varieties thrive. The latter have been introduced and acclimatised for industrial and sporting purposes by Governments and angling societies. Exploitation of the fishing areas—for some classes of fish for the whole year, for others during the breeding season only, or until a certain size is attained—is, where necessary, expressly forbidden; proclaimed localities are closed against net-fishing, and a minimum size of mesh for nets is fixed. The sea-fishermen in some districts have made regulations in their own interests for the purpose of controlling the market supply, and these they rigorously observe.

2. *Economic Fisheries.*—*Although Australia's food fishes are abundant, the* development of the industry has been slow. It has been authoritatively stated that the marine fisheries, properly fostered, will develop into an industry of national importance. Local catches of lake and river fishes furnish, in the aggregate, a not inconsiderable amount of food supply.

3. **Distribution of Supplies.**—Present methods of distribution impose serious difficulties on the development of fishing generally, since there is a wide divergence between the price paid by the consumer and the return received by the producer. States and municipalities are interesting themselves in the direction of more economic distribution. Good markets are assured in the chief cities for regular deliveries of fresh fish.

4. **Oyster Fisheries.**—Natural oyster beds, whose ample product is of excellent quality, exist on the foreshores in the shallow waters of inlets and estuaries in several parts of Australia. By husbanding the natural crop, and by judicious transplanting, the oyster output has been very materially augmented, and it is believed that there is a great future for the industry. The areas are leased by the Government to private persons, lengths of foreshore being taken up and profitably exploited. In New South Wales and Queensland particularly, the industry has developed; and small yields have been obtained in South Australia and Victoria.

5. **Pearl-shelling, Bêche-de-Mer, etc.**—(i) *General.* Pearl-shelling is carried on in the tropical waters of Queensland, the Northern Territory, and Western Australia. The pearl oyster inhabits the northern and western coastal waters from Cape York to Shark Bay, a length of shore of over 2,000 miles. The shells are marketed in considerable quantities, and pearls also are obtained in Queensland and Western Australia. The fishing is generally conducted with the aid of diving apparatus, in water varying from 4 to 20 fathoms in depth. In Queensland and the Northern Territory the bêche-de-mer

industry is carried on, and tortoise-shell is obtained on the coasts. Experiments have been made in cultivating the pearl oyster on suitable banks. In October, 1911, a pearl, weighing 178 grains, and valued at £3,000, was obtained at Broome. Further details regarding pearl-shelling are given in Official Year Book No. 6, p. 463. Trochus-shell to the value of £12,000, £23,000, £21,800, £37,886, and £30,280 was raised in Queensland during 1915, 1916, 1917, 1918, and 1919 respectively.

(ii) *Royal Commission on Pearl-shelling Industry.* In accordance with the "White Australia" policy, it was originally determined that the employment of Asiatic labour in the pearl-shelling industry should be restricted, and ultimately cease, and it was proposed that after 31st December, 1913, permits to indent Asiatics for the pearling fleet should no longer be issued. In view, however, of the disorganisation of the industry occasioned by the war, the time was extended to the 30th June, 1918, after which date permits to introduce Asiatic labour were to be granted only in cases where the diver and tender of a boat were Europeans. Since the receipt of the Report of the Royal Commission, referred to hereunder, this proviso was, however, revoked. In March, 1912, a Royal Commission to inquire into the pearling industry was appointed by the Commonwealth Government, and after visits to the Queensland and Western Australian waters, various sittings, and the issue of a progress report, presented its final report in 1916. The Commissioners stated that, though it might be practicable, they did not consider it desirable or profitable to attempt by any drastic methods to transfer the industry from Asiatics to Europeans. They further stated that, while the labour now employed is almost entirely Asiatic, they did not consider that the "White Australia" policy would be weakened or imperilled by allowing the industry to continue as at present conducted. At Thursday Island the pearling industry is almost monopolised by Japanese.

§ 2. Fisheries Statistics.

1. **Estimates for the Commonwealth.**—The returns given below have been furnished by the State departments. Estimates and approximations, where shewn, are official. The data do not generally lend themselves to presentation on a uniform scheme, but the principal facts have as far as possible been compiled for the Commonwealth.

GENERAL FISHERIES (EXCLUDING EDIBLE OYSTERS, PEARL-SHELL, AND *BÊCHE-DE-MER*), *COMMONWEALTH, 1919.*

State or Territory.	No. of Boats Engaged.	Value of Boats and Equipment.	No. of Men Employed.	Total Take of—		Value of Take.	
				Fish.	Spiny Lobster (Crayfish).	Fish.	Spiny Lobster (Crayfish).
	No.	£	No.	cwt.	doz.	£	£
New South Wales ..	927	53,346	3,164	*b*190,404	*c*4,732	*b*287,369	3,549
Victoria (*e*) ..	883	89,712	1,240	99,091	18,587	154,600	19,060
Queensland ..	725	47,213	1,375	61,380	..	98,750	..
South Australia (*e*) ..	900	35,000	1,073	(*a*)	(*a*)	248,000	(*f*)
Western Australia	262	22,821	562	26,268	6,373	73,550	3,187
Tasmania (*d*) ..	131	12,795	327	doz. 22,744	3,560	12,951	1,100
Northern Territory (*e*)	10	700	33	600	..	1,900	..
Commonwealth (*d*)	3,838	261,587	7,774	(*a*)	(*a*)	877,120	26,896

(*a*) Not available. (*b*) Including 43,691 cwt. fish, valued at £91,751, obtained by State trawlers. (*c*) Also 77 dozen crabs and 5,659 cwt. prawns. (*d*) Incomplete. (*e*) Year ended 30th June, 1920. (*f*) Included with fish.

The available returns from the Commonwealth oyster fisheries appear in the next table. Edible oysters are not found in Western Australia. There is no information available in regard to the small consumption of local oysters in Tasmania.

EDIBLE OYSTER FISHERIES, COMMONWEALTH (*a*), 1919.

State or Territory.	Number of Boats Engaged.	Value of Boats and Equipment.	Number of Men Employed.	Number of Leases.	Oysters Taken.	
					Quantity.	Value.
	No.	£	No.	No.	cwt.	£
New South Wales	418	14,142	384	3,297	41,674	59,840
Victoria(*b*)	(*c*)	(*c*)	(*c*)	2	10,849	8,100
Queensland	85	11,046	108	572	25,907	32,970
South Australia(*c*) ..	..	..	..	..	..	..
Commonwealth ..	..	..	..	3,871*d*	78,430*d*	100,910*d*

(*a*) Practically no oyster fisheries in Western Australia, Tasmania, and Northern Territory. (*b*) Year ended 30th June, 1920. (*c*) Included with General Fisheries. (*d*) Exclusive of South Australia.

The pearling industry is carried on in the tropical waters of Queensland, Western Australia, and the Northern Territory. During the last few years the return from the pearling industry has been adversely affected by labour conditions, coupled with the restriction in the market consequent on the war. Some of the pearling fleets have transferred their operations to Dutch waters. Bêche-de-mer is obtained in Queensland and the Northern Territory, the product being exported to China

PEARL, PEARL-SHELL, AND BÊCHE-DE-MER FISHERIES, COMMONWEALTH (*a*), 1919.

State or Territory.	Number of Boats Engaged.	Value of Boats and Equipment.	Number of Men Employed.	Quantity of Pearl-shell obtained.	Value of Pearl-shell obtained.	Value of Pearls obtained. (*d*)	Value of Bêche-de-mer obtained.	Value of Tortoise-shell obtained.
	No.	£	No.	Tons.	£	£	£	£
Queensland (*b*) ..	155	90,000	1,267	817	115,756	200	34,881	96
Western Australia..	290	166,738	2,080	1,453	265,778	74,012	..	..
Northern Territory(*e*)	26	5,500	106	30	5,500	..	7,840	(*c*)
Commonwealth ..	471	262,238	3,453	2,300	387,034	74,212	42,721	(*d*) 96

(*a*) No pearl-shelling industry in New South Wales, Victoria, South Australia, and Tasmania. (*b*) Also trochus-shell to the value of £30,280. (*c*) Not available. (*d*) Incomplete. (*e*) Year ended 30th June, 1920.

For obvious reasons the returns in regard to the value of pearls obtained can be regarded as rough approximations only. The trochus-shell raised in Queensland is used principally in the manufacture of "pearl" buttons. The next table gives the revenue from fisheries in each State :—

PUBLIC REVENUE FROM FISHERIES, COMMONWEALTH, 1919.

State or Territory.	Licenses.	Leases.	Fines and Forfeitures.	Other Sources.	Total.
	£	£	£	£	£
New South Wales ..	1,323	8,287	223	323	10,156
Victoria(*a*)	691	17	130	20	858
Queensland	2,673	3,187	15	..	5,875
South Australia(*a*) ..	1,019	..	87	..	1,106
Western Australia ..	4,365	478	11	3,536	8,390
Tasmania	828	..	57	40	925
Northern Territory(*a*) ..	60	..	..	..	60
Commonwealth ..	10,959	11,969	523	3,919	27,370

(*a*) Year ended 30th June, 1920.

A summary of the main items of information available in regard to General and Oyster Fisheries in the Commonwealth is given hereunder for the five years 1915–19 :—

GENERAL AND OYSTER FISHERIES, COMMONWEALTH, 1915 TO 1919.

Particulars.	1915.	1916.	1917.	1918.	1919.
General Fisheries—					
No. of boats engaged ..	3,374	3,581	3,401 (b)	3,287 (b)	3,838
No. of men employed ..	7,355	7,102	6,773 (b)	6,515 (b)	7,774
Fish obtained—					
Quantity .. cwt.	466,040 (b)	469,574 (b)	463,839 (b)	490,612 (b)	377,743(c)
Value .. £	709,176	742,535 (b)	695,718 (b)	755,059 (b)	877.120
Lobsters obtained—Value £	30,722	33,582 (b)	28,603 (b)	32,250 (b)	26,896(d)
Edible Oyster Fisheries(a)—					
No. of boats engaged ..	503	547	577	550	503(e)
No. of men employed ..	618	618	640	598	492(e)
Oysters obtained—					
Quantity .. cwt.	71,122	85,740	74,313	78,668	78,430(d)
Value .. £	76,160	94,884	86,550	92,261	100,910(d)
Public Revenue from Fisheries—					
Licenses .. £	7,717	8,673	9,080	8,903	10,959
Leases .. £	13,004	14,065	12,420	12,646	11,969
Fines and forfeitures £	713	764	358	438	523
Other sources .. £	218	255	999	575	3,919
Total revenue £	21,652	23,757	22,857	22,562	27,370

(a) There are practically no oyster fisheries in Western Australia, Tasmania, and Northern Territory. (b) Exclusive of Tasmania. (c) Exclusive of South Australia and Tasmania. (d) Exclusive of South Australia. (e) Exclusive of Victoria and South Australia.

The following table gives in summarised form for the years 1915–19 the details available in regard to pearling and bêche-de-mer fishery for the States where these industries are carried on, *i.e.*, Queensland, Western Australia, and the Northern Territory. *The low production of pearl-shell in 1915 was, of course, due to the loss of market occasioned* by the war. For obvious reasons, figures regarding value of pearls obtained can be taken as rough approximations only.

PEARL, PEARL-SHELL, AND BÊCHE-DE-MER FISHERIES, COMMONWEALTH, 1915 TO 1919.

Particulars.	1915.	1916.	1917.	1918.	1919.
No. of boats engaged ..	346	429	471	401	471
No. of men employed ..	2,561	3,336	3,615	2,935	3,453
Pearl-shell obtained—					
Quantity .. tons	1,180	1,538	2,192	1,616	2,300
Value.. .. £	143,407 (b)	229,255 (b)	264,295 (b)	224,115 (b)	387,034 (b)
Pearls obtained(a)—					
Value.. .. £	14,894	27,190	39,333	63,487	74,212 (c)
Bêche-de-mer obtained—					
Quantity .. tons	770	513	624	468	308
Value.. .. £	40,078	30,222	42,064	48,933	42,721
Tortoise-shell obtained—					
Quantity .. lbs.	327	982	942	695	172 (c)
Value.. .. £	155	262	378	350	96 (c)

(a) Incomplete; but as returned. (b) Also trochus shell valued at £12,600 in 1915; at £23,000 in 1916; at £21,900 in 1917; at £37,888 in 1918; and at £30,280 in 1919. (c) Incomplete.

§ 3. Oversea Trade in Fish.

That the development of the fishing industry in Australia leaves much to be desired is evident from the fact that the import of preserved fish into the Commonwealth is very large. The figures for the imports for the last five years were as follows :—

IMPORTS OF FISH, COMMONWEALTH, 1915–16 TO 1919–20.

Classification.		1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
Fresh (oysters) ..	cwt.	4,736	3,059	1,583	2,321	520
	£	3,040	2,157	1,098	1,617	762
Fresh, or preserved by cold process	cwt.	25,771	18,363	11,080	5,383	9,444
	£	68,676	48,191	26,306	15,144	39,796
Potted	cwt.	(a)	(a)	(a)	(a)	(a)
	£	54,414	44,208	1,300	10,075	97,340
Preserved in tins	cwt.	213,347	174,145	148,421	62,426	148,684
	£	755,286	715,741	788,728	345,918	989,742
Smoked, dried, and n.e.i.	cwt.	10,403	10,015	7,320	2,313	6,106
	£	32,868	37,239	35,602	15,863	38,298
Total ..	cwt. (b)	254,257	205,582	168,404	72,443	164,754
	£	914,284	847,596	853,034	388,617	1,165,938

(a) Not available. (b) Exclusive of potted fish.

Tinned fish constitutes by far the largest proportion of the imports, the bulk of it consisting of salmon from the United States, Canada, Japan, and Alaska. The potted fish comes chiefly from the United Kingdom. New Zealand supplies the largest proportion of the fresh fish, the bulk of the remainder coming from the United Kingdom and Canada. The small import of oysters consists entirely of New Zealand produce.

The exports of local fish produce for the five years 1915–16 to 1919–20 are given hereunder :—

EXPORTS OF FISH (AUSTRALIAN PRODUCE), COMMONWEALTH, 1915–16 TO 1919–20.

Classification.		1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
Fish, fresh, smoked, or preserved by cold process	cwt.	918	764	983	530	790
	£	2,806	3,089	4,048	2,591	6,017
Preserved, in tins, dried, salted, etc.	cwt.	11,044	12,222	13,413	7,072	9,259
	£	40,441	39,839	57,254	45,342	66,255
Total ..	cwt.	11,962	12,986	14,396	7,602	10,049
	£	43,247	42,928	61,302	47,933	72,272

The quantity of fresh fish exported from the Commonwealth is trifling, and the amount of £6,017 shewn in the table above consists chiefly of cured bêche-de-mer exported to Hong Kong from the Northern Territory. The bulk of the amount of £66,255 consists of an export of salt fish also to Hong Kong from Queensland.

The exports of pearl-shell and tortoise-shell are given hereunder for the five years 1915-16 to 1919-20 :—

EXPORTS OF PEARL-SHELL AND TORTOISE-SHELL, COMMONWEALTH, 1915-16 TO 1919-20.

Article.		1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
Pearl-shell ..	cwt.	50,124	70,030	59,598	49,300	46,080
	£	194,052	363,669	347,964	316,154	467,050
Tortoise-shell ..	lbs.	570	1,283	1,241	478	2,837
	£	333	802	609	402	3,215

Most of the pearl-shell exported during 1919-20 was consigned to the United States and the United Kingdom, values being £265,000 and £197,000 respectively. A small export was also made to Japan.

§ 4. Development of the Fishing Industry.

1. **Transport and Marketing.**—Up to the present the question of adequate transport and marketing of the proved supplies of fish has not been satisfactorily dealt with in all the States. In New South Wales, as shewn in § 6 hereinafter, the matter of exploiting and marketing trawlable fish has been undertaken by the State Government, which has also taken steps to improve the conditions under which the ordinary coastal fishing is carried on. In Queensland, also, State trawling was developed in 1919, and some good trawling bottoms have been located and charted between Cape Moreton and Caloundra.

2. **Experiment and Culture.**—In many respects the fishing industry is capable of modification and development. Although some valuable work has been done by the State Governments in the way of experiment and culture, a uniform policy of development for Australia is desirable, and recommendations have been made that the Fisheries Departments of the various States should co-operate with the Federal Government with a view to increasing the productiveness of the Commonwealth waters; and that uniform fisheries laws should be adopted by adjacent States.

All live fish imported into Australia are examined on shipboard in order to prevent the importation of undesirable fish.

With the object of ascertaining something of the movements of oceanic fishes, as well as of those estuarine fishes which make periodical oceanic migrations, reports are furnished regarding the various kinds of fishes, etc., and their movements along the coast.

Fuller details regarding the activities of the States in fish-culture are given in Official Year Book No. 6, pp. 471-2.

By arrangement with the Commonwealth Fisheries Department, members of the staff of the Australian Museum, Sydney, accompanied the F.I.S. *Endeavour* on various cruises. Specimens were collected, mounted for scientific purposes, and distributed to other Australian Museums, a considerable number being put aside for the Commonwealth Fishery Museum.

3. **Consumption of Fish.**—Despite the circumstance that numerous varieties of valuable food fishes abound in the coastal waters of Australia, while the freshwater rivers and lakes yield abundant supplies of natural and acclimatised species, the fishing industry has not developed to the extent that might reasonably be expected. It has been said that the Australians are not an "ichthyophagous race." The annual consumption of fish per head of population in Great Britain is 42 lbs.; in Australia it has been estimated at 10 lbs. The comparatively heavy import of dried and preserved fish would appear to indicate that there is great scope for the development of the industry, which now seems to be ill-managed, the price to the consumer being high, while the fisherman's gain is uncertain, and the system of distribution lacks method. Considerable improvement has, however, been effected in recent years, particularly in New South Wales (*vide* § 6 herein).

§ 5. The Commonwealth Department of Fisheries.

1. *The Federal Council of Australasia.*—The Federal Council had power to legislate with regard to fisheries in Australasian waters beyond territorial limits. In its second session (opened 16th January, 1888) an Act was passed to regulate pearl-shell and bêche-de-mer fisheries in Australasian waters adjacent to Queensland; and in the third session, opened shortly afterwards, the Act was made applicable to Western Australia. Upon the passing of the Commonwealth Constitution Act of 1900, however, the Federal Council ceased to exist.

2. **Commonwealth Investigations.**—In 1907 the Commonwealth Government decided to demonstrate what might be attained commercially by the application of modern methods. A Federal Investigation Ship, the *Endeavour*, was constructed specially for the work, and a Director of Fisheries was appointed. Experimental cruises were immediately undertaken. These shewed that the Commonwealth possesses an asset of considerable value in her sea fisheries. The scope and results of the inquiries are set out in the reports issued by the late Director.

3. **Scope of the Inquiry.**—The immediate scope laid down for the investigation was shortly, as follows:—

(i) By various means of capture to ascertain what marketable food-fishes may be found in ocean waters adjacent to Australia.
(ii) In what quantity they may be taken.
(iii) To what extent they migrate, and whither.
(iv) How they may be conveniently and economically captured.
(v) *By systematic survey to find out and chart suitable fishing grounds.*

In addition to the work which was thus carried on in the various recognised methods of capture (including long-line and drift-net fishing, etc.), hydrographic survey work, etc., was carried out for the purpose of ascertaining the nature of the sea bottom, depth of water, currents, and sea temperature.

4. *The F.I.S. "Endeavour."*—The construction of the investigation vessel was undertaken in the Commonwealth, and was upon the lines shown by the most recent European experience to be of greatest advantage, with necessary modifications to suit the Australian climate. A description of the vessel, which was the first Commonwealth-owned seagoing ship, is given in Official Year Book No. 6, p. 473. Up to the end of 1913, 85 cruises had been made in eastern and southern waters. In 1914, 13 more cruises were successfully undertaken; but the vessel with all on board, including the Director, was lost on her 99th cruise, which was commenced on 20th November, 1914.

5. **Trawling Grounds Discovered by the "Endeavour."**—According to information supplied by the Commonwealth Department of Trade and Customs, it would appear from the experiments carried out by the *Endeavour* on the shelf of the east coast of Australia, that the best trawling grounds extend from near Port Stephens, in New South Wales, past Sydney to Gabo Island, continuing across the eastern slope of Bass Strait past Flinders Island to Tasmania. These trawling grounds cover an area of approximately 6,000 square miles, and are within easy access to two markets—Sydney and Melbourne. Extensive operations have been carried out on these grounds, and fish in payable quantities have been obtained.

A very rich trawling ground has also been located in the centre of the Great Australian Bight, estimated to cover an area of about 4,000 square miles. The depth varies from 80 to 300 fathoms, but the greater portion of the trawlable area is situated between 100 and 200 fathoms. Excellent results were obtained by the *Endeavour* in this locality, fine rock ling and flathead being among the many choice varieties caught. This ground is situated about half-way between Adelaide and Albany, and about two days' steaming from either place.

In both of the trawling areas referred to above, considerable quantities of prime edible fish have been caught by the *Endeavour*, thus demonstrating the potential value of Australia's deep-sea fisheries.

6. **The Continental Shelf.**—In addition to the primary duty of locating payable trawling grounds, extensive hydrographic surveys were carried out by the *Endeavour* along the coast from the north of Queensland to the west coast of Western Australia. Soundings, samples of the sea bottom, sea temperatures, etc., were taken, principally

within the hundred-fathom line, in order to determine the suitability or otherwise of the localities for trawling. These observations were, in most instances, taken prior to the casting of the trawl net, which was the principal means of capture used by the Endeavour for ascertaining the richness of areas so far as the abundance of fish food was concerned. Most of the soundings have been charted and are available for public information.

The late Mr. H. C. Dannevig, formerly Director of Fisheries for the Commonwealth, in his "Report on the Continental Shelf on the East Coast of Australia" (Fisheries—Volume III., Part 6), explained how systematic surveys were carried out by him on the *Endeavour* and information obtained as to the nature of the continental shelf which surrounds the Australian continent.

The shelf consists of a narrow submerged ledge, varying in width from 10 miles to more than 100 miles, covered by a depth of less than 100 fathoms. From the outer edge of this ledge or shelf the bottom slopes away more or less abruptly towards the great ocean depths. It is within the area of the shelf that trawling grounds may be looked for.

On the east coast of Australia, the typical shelf commences at Sandy Cape in Queensland, and continues southwards. For about 360 miles, or south of Smoky Cape in latitude 31° S., the shelf presents peculiarities which gradually disappear further south. One of these peculiarities is that the shallow portion of the shelf continues seawards for a considerable distance, so that, for instance, at Double Island, the depth is only 50 fathoms. At this depth the shelf may here be said to terminate, as, at depths from 60 to 100 fathoms, apart from being narrow and rocky, the sea floor is frequently so steep as to form part of the general slope downwards to abysmal depths. Another peculiarity is that northwards from Cape Moreton the shallow portion of the ledge is mainly covered with coral sand, which southwards gives way to a somewhat yellow sand, occasionally interspersed, in localities where the currents are strong, with gravelly beds.

Southwards from Smoky Cape the relative proportion between the inner and outer areas becomes reversed. At the Cape itself the shelf is narrow and divides into two equal belts; the shallow area of less than 50 fathoms, and a deeper stratum with an average depth of 70 fathoms. From here southwards the outer stratum becomes gradually wider at the expense of the inshore or secondary ledge, a maximum width of which is found in the Newcastle Bight, where the inshore ledge is seven to eight miles wide, while the outer ledge extends for another twenty-one miles before breaking off into the deep. Simultaneously with the appearance of the outside ledge at Smoky Cape the depth of the "break off" increases quickly to about 100 fathoms, and remains so for the remainder of the coast south to Gabo Island.

Southwards from Gabo Island the shelf widens out considerably, and consists entirely of the outward or deeper stratum, which, between 50 and 300 fathoms, is many miles wide. The edge gradually bends westward parallel with the coast until opposite the mouth of the Snowy River, where at a distance of about thirty miles from land it turns abruptly to the south. On approaching the bend, the shallow area (of less than 50 fathoms) has gradually extended at the expense of the outer ledge, and while the former continues westward through Bass Strait and connects Victoria and Tasmania, the latter extends as a relatively narrow belt along the eastern slope past Flinders Island and along the east coast of Tasmania.

The hundred-fathom line from the south of Tasmania to the western end of the Great Australian Bight was also surveyed by the *Endeavour*. On that portion of the coast it was found that the continental shelf was considerably wider than on the east coast, and the slope of the shelf more gradual.

7. Publications of the Commonwealth Fisheries Department.—New and rare species of fish and marine forms secured by the *Endeavour* have been preserved, examined and described by various scientists, recognised as authorities on the subject of marine life. The following monographs have been published by the Department of Trade and Customs, the names of the authors being appended:—

Subject.	Author.
Mollusca (2 parts)	Charles Hedley, F.L.S. (Assistant Curator and Conchologist, Australian Museum, Sydney).
Fishes (4 parts)	Allan R. McCulloch (Zoologist, Australian Museum).

Subject.	Author.
Sponges	E. F. Hallmann, B.Sc. (Australian Museum).
Assymetron	Miss Janet W. Raff, B.Sc. (Melbourne University).
Globigerina Ooze	F. Chapman, B.A., A.L.S. (Palæontologist, National Museum, Melbourne).
Hydroida (3 parts)	W. M. Bale, F.R.M.S.
Foraminifera and Ostracoda ..	F. Chapman, B.A., A.L.S.
Algæ	A. H. Lucas, M.A. (Sydney Grammar School).
Polychæta (2 parts)	William Benham, M.A., D.Sc., F.R.S. (Professor of Biology at the University of Otago, N.Z.).
Gephyrean Priapulus	Do. do. do.
Sea Lilies, Star Fishes, Brittle Stars and Sea Urchins	Hubert Lyman Clark (Curator of Echinoderms, Museum of Comparative Zoology, Cambridge, Mass., U.S.A.).
Cephalopoda	S. Stillman Berry.'
Spider Crabs	Miss Mary J. Rathbun (United States National Museum, Washington, D.C.).

The following papers were, in addition, prepared by the Director of Fisheries, the late Mr. H. C. Dannevig :—

First and Second Preliminary Reports on the Fishing Experiments carried out by the F.I.S. *Endeavour*.

Notes on Australia's Fisheries, with a summary of the results obtained by the F.I.S. *Endeavour*.

Paper on the Continental Shelf of the East Coast of Australia.

Paper on the Physiography of Bass Strait.

§ 6. The State Trawling Industry—New South Wales.

As far back as the year 1898, the New South Wales Government equipped a small vessel called *Thetis* for the purpose of investigating the potentialities of the State coastal waters in regard to the supply of edible fish. The knowledge gained from the cruises of this vessel was, of course, considerably augmented by that obtained since 1907 by the more modern methods adopted by the Commonwealth vessel *Endeavour*. In view of the favourable outlook, the State Government determined to exploit the fishing industry. The necessary vessels and equipment were ordered, and by the middle of the year 1915, three steam trawlers built of steel and equipped in accordance with the most up-to-date methods had commenced operations in the coastal waters. Other vessels have also been built for trawling and surface fishing. It was not long before these vessels had proved the existence of highly valuable trawling grounds within a day's steam of Sydney Heads, and what is believed to be one of the most prolific areas in the world has been located within three hours' steam of the home wharf. The ample product has been landed and sold to the public at extremely low rates in the State retail depots, of which several have been established, as well as at occasional sales in markets and in country districts.

Moreover, in connexion with the undertaking, arrangements have been made for the collection and distribution of fish taken by coastal and estuarine fishermen. With this end in view, large refrigerating stations have been built at Newcastle, Clarence River, and Port Stephens. The scheme has proved a great boon to fishermen by obviating the losses caused by the uncertain supply of ice and the absence of facilities for marketing.

§ 7. Fish Preserving.

Bounties were provided for ten years by the Federal Government for fish preserving, the rate payable being ½d. per lb. The amounts paid were £27 in 1907–8; £1,727 in 1908–9; £311 in 1909–10; £115 in 1910–11; £168 in 1911–12; £103 in 1912–13; £80 in 1913–14; £156 in 1914–15; £106 in 1915–16; £177 in 1916–17. In 1917–18, £35 was paid in satisfaction of a claim made in the preceding year. Up to the present but little development has taken place, the establishments which claimed bounty for fish preserving numbering only one in 1917–18, as compared with five in 1916–17, two in 1915–16, and five in 1914–15. No bounties were paid in the years 1918–19 and 1919–20.

SECTION XII.

MINES AND MININ(

§ 1. The Mineral Wealth of Australia.

1. **Place of Mining in Australian Development.**—The value of production from the mineral industry is now considerably less than that returned by the agricultural or the pastoral industry, nevertheless it was the discovery of gold in payable quantities that first attracted population to Australia, and thus laid the foundation of its nationhood. Prior to 1851, the year when Hargraves' memorable discovery was made, coal and copper had both been mined to some extent, and the existence of deposits of other minerals, including gold, had been proved. But it was the news of the sensational finds of the precious metal in 1851 and the year immediately following that brought about a constant stream of immigration, and caused an increase in population from 221,000 at the end of 1841 to upwards of 1,168,000 at the end of 1861.

2. **Extent of Mineral Wealth.**—The extent of the total mineral wealth of Australia cannot yet be regarded as completely ascertained, as large areas of country still await systematic prospecting. The presence of considerable deposits of valuable minerals has long been known. Thus, coal was discovered in 1797, and a shipload was exported to Bengal in 1799; silver was discovered by Count Strzelecki as early as 1839, and was worked as early as 1864; copper mining dates back to 1844; lead to about 1848; iron to about 1850; while the discovery of gold in payable quantities dates back to 1851. Cobalt, nickel, manganese, chromium, tungsten, molybdenum, mercury, antimony, bismuth, zinc, radio-active ores, etc., have all been found, some in fairly large quantities.

Among the more valuable non-metalliferous substances may be mentioned coke, kerosene shale, graphite, alunite, asbestos, diatomaceous earth, clays, ochres, etc.; in building stones: sandstones, syenites, granites, basalts, augite-andesite, porphyries, serpentines, slates, limestones, and marbles; in precious stones: diamonds, emeralds, rubies, sapphires, amethysts, precious opal, turquoise, topazes, garnets, chrysolites, cairngorm, agates, etc. In general, it may be said that the variety of Australian mineral wealth is very great.

3. **Quantity and Value of Production during 1919.**—The value of production from the mineral industry in 1919 shewed a decline of nearly £6,500,000 on that for the preceding year. In New South Wales, where there was a falling-off amounting to upwards of £4,000,000, the lessened output was chiefly due to the cessation of operations early in the year at the Broken Hill mines, and in part to the dry conditions prevailing over a large area of the State. The yield from copper in all the copper-producing States was also responsible for a diminution in the totals. This was especially the case in regard to Queensland and South Australia, where decreases of £1,135,000 and £600,000 respectively were recorded, the production from copper in the former State shewing a decline from over £2,000,000 to about £952,000, and in the latter from £828,000 to £229,000. Production in South Australia was to some extent hampered by shortage of fuel, the result of industrial troubles in other States.

The table hereunder and the succeeding one shew respectively the quantity of the various minerals produced during 1919 in each State, and the values apportioned thereto in the form in which the items were reported to the Mines Departments. The quantities and values given represent the amounts which the Departments consider may fairly be taken as accruing to the mineral industry as such. Thus, the item pig iron in New South Wales represents metal produced from locally raised ore only and so reported to the Mines Department. South Australia, as the table shews,

receives credit for ironstone in the crude stage, but the quantity and value of the pig iron produced therefrom in New South Wales cannot be taken as a product of the New South Wales mineral industry. Similarly lead, silver-lead, and zinc are credited in the form reported to the State of origin—chiefly New South Wales—although the actual metal extraction is carried out to a large extent elsewhere. Information in regard to the quantity of *metal* extracted at the various smelting and refining works in the Commonwealth, together with that contained (estimated) in the ores, concentrates, &c., exported or sold for export, is given in §18 hereinafter.

QUANTITIES OF PRINCIPAL MINERALS PRODUCED, COMMONWEALTH, 1919.

Minerals.	Unit.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T. (*d*)	C'wealth.
Alunite	ton	2,485	..	..	60	..	..	..	2,545
Antimony ore ..	,,	87	1,208	3	..	..	..	..	1,298
Asbestos	,,	1,739	..	..	..	53	51	..	1,843
Bismuth	cwt.	390	..	2,838 (*a*)	..	1	35	..	3,264
Brown coal ..	ton	..	111,628	..	..	..	..	..	111,628
Chromite	,,	250	..	..	..	..	..	..	250
Coal	,,	8,631,554	423,045	931,631	..	401,713	66,253	..	10,455,096
Coke	,,	424,773	..	..	..	..	..	..	424,773
Copper (ingot and matte) ..	,,	1,460	..	9,997	2,517	4	5,071	..	19,049
Copper ore ..	,,	..	..	(*b*)	(*b*)	455	..	159	614
Diatomaceous earth	,,	88	140	..	..	..	..	..	228
Gold	fine oz.	65,839	135,428	121,030	3,224	734,066	7,686	820	1,068,102
Gypsum	ton	..	820	..	25,216	..	..	..	26,036
Iron (pig) (*e*) ..	,,	80,941	..	..	..	..	..	..	80,941
Iron oxide ..	,,	2,724	..	..	..	..	..	..	2,724
Ironstone ..	,,	2,128	..	24,676	268,530	..	..	..	295,334
Kaolin	,,	2,254	2,049	..	777	..	..	..	5,080
Lead	,,	11,497	..	135	..	1,780	..	..	13,412
Lead and silver ore, concentrates, etc.	,,	77,989	..	..	..	248	..	12	78,249
Limestone flux ..	,,	83,032	..	86,436	45,398	..	..	..	214,866
Magnesite ..	,,	9,264	77	..	273	..	..	..	9,614
Manganese ore ..	,,	4,651	..	20	298	..	..	..	4,969
Molybdenite ..	cwt.	1,317	1,560	2,356	4	140	..	7	5,384
Phosphate ..	ton	576	2,491	..	5,950	..	..	..	9,017
Platinum ..	oz.	213	..	..	..	..	..	..	213
Pyritic ore ..	ton	..	..	..	..	4,136	3,457	..	7,593
Salt	,,	..	(*c*)	..	69,174	..	..	..	69,174
Scheelite ..	,,	80	..	13	..	6	199	..	298
Shale	,,	25,453	..	..	..	..	600	..	26,053
Silver	fine oz.	1,232,710	6,121	92,048	561	223,332	..	..	1,554,772
Tin and tin ore ..	ton	2,692	113	994	..	318	1,580	162	5,859
Wolfram ..	,,	135	2	229	..	[illegible]	121	201	688
Zinc concentrates ..	,,	72,294	..	..	..	..	285	..	72,579

(*a*) Including 2,798 cwt. bismuth and wolfram. (*b*) Included with metal. (*c*) Not available for publication. (*d*) Year ended 30th June, 1919. (*e*) *Vide* letterpress preceding paragraph.

The comparative value of the production of minerals raised in each State during 1919 is given in the following table:—

VALUE OF COMMONWEALTH MINERAL PRODUCTION IN 1919.

Minerals.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.(*c*)	C'wealth.
	£	£	£	£	£	£	£	£
Alunite ..	14,910	..	..	246	..	..	..	15,156
Anthmony ore ..	2,342	24,160	78	..	..	..	..	26,580
Asbestos ..	1,986	..	..	..	1,443	1,275	..	4,704
Bismuth ..	20,215	..	(*a*)19,336	..	15	573	..	40,139
Brown coal ..	..	34,542	..	..	..	..	..	34,542
Chromite ..	616	..	..	..	..	..	..	616
Coal	5,422,846	372,075	614,307	..	270,355	47,004	..	6,726,587
Coke	550,127	..	..	..	..	..	..	550,127
Copper (ingot and matte) ..	139,296	..	952,501	228,930	365	557,710	..	1,878,802
Copper ore ..	..	..	(*b*)	(*b*)	9,740	984	2,349	13,073
Diamonds ..	1,706	..	..	..	..	..	..	1,706
Diatomaceous earth	246	560	..	..	..	..	..	806

(*a*) Including bismuth and wolfram, £16,681. (*b*) Included with metal. (*c*) Year ended 30th June, 1919.

VALUE OF COMMONWEALTH MINERAL PRODUCTION IN 1919—*continued.*

Minerals.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T. (c)	C'wealth.
	£	£	£	£	£	£	£	£
Gems (unspecified)	..	..	42,883	..	..	..	..	42,883
Gold	336,240	691,632	618,101	16,465	3,748,882	39,252	4,234	5,454,806
Gypsum ..	..	482	..	18,725	..	..	..	19,207
Iron (pig) (e) ..	445,175	..	..	..	..	..	..	445,175
Iron oxide ..	3,406	..	..	..	..	..	..	3,406
Ironstone ..	2,072	..	27,684	307,402	..	..	..	337,158
Kaolin ..	3,243	2,255	..	1,463	..	..	..	6,961
Lead	324,215	..	4,739	..	48,462	..	..	377,416
Lead and silver-lead ore, concentrates, &c. ..	1,030,825	[illegible]	(a)	..	3,704	136,234	132	1,170,895
Limestone flux ..	22,779	..	(d)27,842	15,994	..	..	..	66,615
Magnesite ..	8,032	231	..	508	..	..	..	8,771
Manganese ore ..	13,953	..	103	1,490	..	..	..	15,546
Molybdenite ..	30,308	2,531	52,234	70	100	..	6	85,249
Opal	27,552	..	600	20,000	..	..	..	48,152
Phosphate ..	2,016	2,491	..	8,982	..	..	..	13,489
Platinum ..	3,150	..	..	..	..	..	..	3,150
Pyritic ore ..	..	..	..	..	4,919	4,288	..	9,207
Salt	..	(b)	..	138,348	..	..	..	138,348
Scheelite ..	15,193	..	2,331	..	772	43,181	..	61,477
Shale	37,968	..	..	..	..	900	..	38,868
Silver	292,838	1,607	23,772	180	55,342	..	..	373,739
Tin and tin ore ..	416,623	17,561	143,167	..	47,269	395,794	30,021	1,050,435
Wolfram ..	22,818	400	40,596	..	15	26,613	34,805	125,247
Zinc concentrates	247,395	..	..	..	..	13,110	..	260,505
Unenumerated ..	212,010	1,453	4,961	15,961	590	40,774	150	275,889
Total ..	9,652,101	1,151,980	2,575,225	774,764	4,191,973	1,307,692	71,697	19,725,432

(a) Included with metal. (b) Not available for publication. (c) Year ended 30th June, 1919. (d) Portion of the limestone raised was used in the manufacture of lime and cement. (e) See letterpress § 3.

It may be pointed out in connexion with the figures given in the above table that the totals are exclusive of returns relating to certain commodities, such as stone for building and industrial uses, sand, gravel, brick and pottery clays, lime, cement, and slates, which might rightly be included under the generic term "mineral." Valuations of the production of some of these may be obtained from the reports of the various Mines Departments, but in regard to others it is impossible to obtain adequate information. In some instances, moreover, the published information is of little value. By restricting the comparison to items in connexion with which properly comparable information can be obtained for each State, it is believed that a satisfactory estimate of the progress of the mineral industry can be more readily obtained. The items excluded from the total for New South Wales in 1919 consist of—lime, £57,411; marble, £3,151; Portland cement, £379,896, and brick and pottery clays in the "unenumerated" class. Sulphuric acid to the value of £190,249 was produced in New South Wales in 1919. For South Australia the principal items in the unenumerated class are flint pebbles, £4,809; and barytes, £5,264; while the sulphur contents of the copper ores were valued at £3,105. The unenumerated class in Tasmania includes osmiridium to the value of £39,014.

4. Total Production to end of 1919.—In the next table will be found the estimated value of the total mineral production in each State up to the end of 1919. The figures given in this table are also exclusive of the same items referred to in connexion with the preceding table. Thus the total for New South Wales falls short by £6,569,000 of that published by the State Department of Mines, the principal items excluded being cement, £4,657,000; lime, £591,000; and marble, £38,000.

COMMONWEALTH MINERAL PRODUCTION TO END OF 1919.

Minerals.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter. (a)	C'wealth.
	£	£	£	£	£	£	£	£
Gold ..	62,704,761	300,017,938	83,297,451	1,584,634	141,360,396	8,758,381	2,263,400	599,986,961
Silver and lead ..	87,889,264	258,464	3,057,977	375,035	1,512,858	6,564,849	62,216	99,720,663
Copper ..	15,128,100	216,656	22,586,593	32,127,122	1,610,877	15,057,118	230,930	86,957,396
Iron ..	2,844,800	15,641	440,956	1,822,254	36,695	52,110	..	5,212,556
Tin ..	11,928,503	878,768	9,550,365	..	1,428,107	14,719,377	484,786	38,989,906
Wolfram	269,430	11,530	1,047,014	301	1,441	157,991	160,882	1,648,589
Zinc ..	13,194,545	..	..	15,993	5,437	35,986	..	13,251,961
Coal ..	98,144,265	4,638,735	8,770,956	..	2,323,911	948,268	..	114,835,135
Other ..	11,736,686	629,068	1,999,880	1,960,112	59,392	392,606	18,339	16,796,083
Total ..	303,840,354	306,666,800	130,760,192	37,895,551	148,339,114	46,686,686	3,220,553	977,390,250

(a) To 30th June, 1919.

The "other" minerals in New South Wales include alunite, £190,981; antimony, £341,183; bismuth, £189,042; chrome, £108,211; coke, £5,000,555; diamonds, £133,987; limestone flux, £854,638; molybdenite, £205,565; opal, £1,474,584; scheelite, £188,570; and oil shale, £2,502,413. In the Victorian returns antimony ore was responsible for £534,927. Included in "other" in the Queensland production were opal, £179,195; gems, other, £389,771; bismuth, £303,442; molybdenite, £336,801; and limestone flux, £561,631. The chief items in South Australian "other" minerals were salt, £1,117,297; and limestone flux, £201,548. Considerable values from gypsum and rock phosphates are also included. In the Tasmanian returns limestone flux was responsible for £91,739, and osmiridium for £122,377, while the figures for recent years include values for iron pyrites.

It will be convenient in the succeeding pages to deal first with gold and the various metals, then with non-metallic minerals and precious stones, and finally to furnish some account of the extent of employment in mining generally.

(A) METALLIC MINERALS.

§ 2. Gold.

1. **Discovery of Gold in Various States.**—The discovery of gold in payable quantities was an epoch-making event in Australian history, for, as one writer aptly phrases it, this event "precipitated Australia into nationhood." A more or less detailed account of the finding of gold in the various States appears under this section in Official Year Books Nos. 1 to 4, but considerations of space preclude its repetition in the present issue.

2. **Production of Gold at Various Periods.**—In the following table will be found the value of the gold raised each year in the several States and in the Commonwealth from the dates when payable discoveries were first reported. Owing to defective information in the earlier years the figures fall considerably short of the actual totals, for during the first stages of mining development, large quantities of gold were taken out of Australia by successful diggers, who preferred to keep the amount of their wealth secret. For South Australia the records in the earlier years are somewhat irregular, and this remark applies to some extent also to the returns for Western Australia and Tasmania.

In New South Wales the yield for 1919 was about 21,000 ozs. lower than in 1918, and was the lowest recorded since 1851. In Victoria the yield for 1919 shewed a decrease of 23,000 ozs. fine on that for the preceding year. In Queensland the yield in 1919 was over 12,000 ozs. less than in the preceding year. As in the case in other States where there is a diminishing production, the decline is due to the gradual depletion of the mines in the principal fields. The returns for South Australia for 1919 shew a decrease of nearly 3,000 ozs. on the previous year's output. For Western Australia the figures shew a decrease of over 142,000 ozs. in 1919, as compared

with 1918, diminished returns being recorded in the outputs from all the fields except Kimberley, Peak Hill, Yalgoo, Mount Margaret, Broad Arrow, and North-East Coolgardie. For Tasmania there was a decline of nearly 3,000 ozs.

VALUE OF GOLD RAISED IN AUSTRALIA, 1851 TO 1919.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
1851	468,336	851,596	..	..	..	(b)28,737	..	1,348,669
1852	2,660,946	9,146,140	..	..	..	472,615	..	12,279,701
1853	1,781,172	10,976,392	..	..	..	217,538	..	12,975,102
1854	773,209	8,873,932	..	..	..	65,030	..	9,712,171
1855	654,594	11,277,152	..	..	..	(c)	..	11,931,746
1856	689,174	12,214,976	..	..	..	(c)	..	12,904,150
1857	674,477	11,320,852	..	..	..	1,146	..	11,996,475
1858	1,104,175	10,384,024	..	..	..	850	..	11,489,049
1859	1,259,127	9,394,812	..	..	..	2,188	..	10,656,127
1860	1,465,373	8,896,276	14,565	..	..	460	..	10,376,674
1861	1,806,172	8,140,692	3,928	..	..	32	..	9,950,824
1862	2,467,780	6,920,804	625	..	..	..	..	9,389,209
1863	1,796,170	6,779,276	14,802	..	..	..	..	8,590,248
1864	1,304,926	6,489,788	83,292	..	..	..	..	7,878,006
1865	1,231,243	6,446,216	92,938	..	..	..	..	7,770,397
1866	1,116,404	6,187,792	85,561	..	..	1,044	..	7,390,801
1867	1,053,578	6,005,784	189,248	..	..	4,382	..	7,252,992
1868	994,665	6,739,672	593,516	..	..	2,536	..	8,330,389
1869	974,149	6,179,024	523,045	..	..	514	..	7,676,732
1870	931,016	5,217,216	489,539	..	..	3,666	..	6,641,437
1871	1,250,485	5,475,768	616,907	(a)550,000	..	23,467	..	7,916,627
1872	1,644,177	5,325,508	660,396	6,363	..	27,314	..	7,663,758
1873	1,396,375	4,681,588	717,540	292	..	18,390	..	6,814,186
1874	1,041,614	4,390,572	1,356,071	4,175	..	18,491	..	6,810,923
1875	877,694	4,273,668	1,498,483	7,034	..	11,982	..	6,668,811
1876	613,190	3,855,040	1,438,111	9,888	..	44,923	..	5,961,152
1877	471,448	3,238,612	1,317,265	..	..	23,289	..	5,050,614
1878	430,200	3,032,160	1,149,240	1,225	..	100,000	..	4,712,825
1879	407,219	3,035,788	1,034,216	90	..	230,895	(d)52,500	4,760,708
1880	444,252	3,316,484	944,669	..	..	201,297	(e)26,522	4,933,424
1881	573,582	3,333,512	957,570	880	..	216,901	111,945	5,194,390
1882	526,522	3,458,440	785,868	4,634	..	187,337	80,720	5,043,521
1883	458,530	3,121,012	736,810	10,534	..	176,442	77,195	4,580,523
1884	396,059	3,114,472	1,062,471	15,469	..	160,404	77,935	4,826,810
1885	378,665	2,940,872	1,062,514	15,295	..	155,309	70,414	4,626,069
1886	366,294	2,660,784	1,187,189	32,535	1,148	117,250	63,139	4,428,339
1887	394,579	2,471,004	1,481,990	72,008	18,517	158,533	68,775	4,665,401
1888	317,241	2,500,104	1,690,477	34,205	13,273	147,154	34,802	4,737,256
1889	434,784	2,459,352	2,695,629	37,305	58,871	119,703	47,339	5,852,983
1890	460,285	2,354,240	2,182,563	20,808	86,664	75,888	80,524	5,260,972
1891	559,231	2,305,596	2,030,312	27,380	115,182	145,459	98,149	5,281,309
1892	575,299	2,617,824	2,164,391	26,097	226,284	158,917	108,763	5,877,575
1893	651,286	2,684,504	2,167,794	12,561	421,385	141,326	108,110	6,186,966
1894	1,156,717	2,867,816	2,330,282	33,401	787,099	217,024	109,392	7,501,731
1895	1,315,929	2,960,344	2,150,561	26,060	879,748	206,115	102,734	7,641,491
1896	1,073,360	3,220,348	2,132,979	14,350	1,068,808	237,574	81,178	7,828,597
1897	1,104,315	3,251,064	2,552,668	39,020	2,564,977	296,060	81,024	9,889,728
1898	1,201,743	3,349,028	2,750,348	10,676	3,990,698	291,496	84,467	11,678,456
1899	1,623,320	3,418,000	2,838,446	15,582	6,246,732	327,545	63,459	14,583,084
1900	1,070,920	3,229,628	2,871,578	14,494	6,007,611	316,220	67,694	13,578,145
1901	737,164	3,102,753	2,541,764	16,613	7,235,653	295,176	88,385	14,017,508
1902	684,970	3,062,028	2,720,512	24,828	7,947,661	301,573	70,251	14,811,823
1903	1,080,029	3,259,482	2,839,801	28,650	8,770,719	254,403	69,647	16,302,731
1904	1,146,109	3,252,045	2,714,934	76,025	8,424,226	280,015	41,764	15,935,118
1905	1,165,013	3,173,744	2,517,295	45,853	8,305,654	312,380	51,392	15,571,381
1906	1,078,866	3,280,478	2,313,464	27,000	7,622,749	254,963	48,864	14,626,384
1907	1,050,730	2,954,617	1,978,938	20,540	7,210,749	277,607	21,581	13,514,762
1908	954,854	2,849,838	1,975,554	12,300	6,999,88[illegible]	242,482	23,942	13,058,852
1909	869,546	2,778,958	1,935,178	30,206	6,776,274	190,201	30,906	12,611,267
1910	802,211	2,422,745	1,874,955	28,000	6,246,848	157,370	25,521	11,557,650
1911	769,353	2,140,855	1,640,323	15,000	5,823,075	132,108	30,910	10,551,624
1912	702,129	2,039,464	1,477,979	28,000	5,448,385	161,300	22,671	9,879,928
1913	635,709	1,847,475	1,128,768	27,800	5,581,701	141,876	13,250	9,376,573
1914	528,873	1,755,236	1,059,674	26,581	5,237,353	111,475	9,754	8,728,946
1915	562,819	1,397,793	1,060,708	25,830	5,140,228	78,784	(f)3,781	8,269,938
1916	459,370	1,090,194	913,951	33,000	4,508,582	67,072	(g)3,861	7,075,960
1917	349,038	857,500	761,639	50,334	4,121,645	61,577	(g)3,677	6,185,410
1918	369,743	674,655	567,371	26,252	3,723,183	44,724	(g)2,229	5,408,157
1919	336,240	691,832	618,101	16,465	3,748,882	39,252	(g)4,234	5,454,806
Total	62,704,761	300,017,933	83,297,451	1,394,694	141,360,396	8,758,391	2,263,400	599,986,961

(a) Mines Department estimate of gold production to 1871. (b) Including gold dust to the value of £3,930 exported in 1850. (c) Not available. (d) Estimate prior to 17th August, 1880. (e) 17th August to 31st December, 1880. (f) 1st January to 30th June. (g) Year ended 30th June.

The amount of gold raised in the Commonwealth in any one year attained its maximum in 1903, in which year Western Australia also reached its highest point. For the other States of the Commonwealth the years in which the greatest yields were obtained were as follows:—New South Wales, 1852; Victoria, 1856; Queensland, 1900; South Australia, 1904, and Tasmania, 1899.

The following table shews the quantity in fine ounces of gold raised in each State and in the Commonwealth during each of the last ten years, the value of one ounce fine being taken at £4 4s. 11$\frac{5}{11}$d., except in 1919, when it was taken as £5 2s. 1½d. :—

QUANTITY OF GOLD PRODUCED IN THE COMMONWEALTH, 1910 TO 1919.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.
1910 ..	188,856	570,363	441,402	6,592	1,470,633	37,048	6,008	2,720,902
1911 ..	181,121	504,000	386,165	3,531	1,370,868	31,101	7,277	2,484,063
1912 ..	165,295	480,131	347,940	6,592	1,282,659	37,973	5,337	2,325,933
1913 ..	149,657	434,933	265,735	6,545	1,314,044	33,400	3,119	2,207,433
1914 ..	124,507	413,218	249,468	6,258	1,232,978	26,243	2,296	2,054,968
1915 ..	132,498	329,068	249,711	6,081	1,210,113	18,547	(a) 890	1,946,908
1916 ..	108,145	256,653	215,162	7,769	1,061,399	15,790	(b) 909	1,665,827
1917 ..	82,170	201,873	179,305	7,141	970,318	14,496	(b) 866	1,456,169
1918 ..	87,045	158,827	133,570	6,180	876,512	10,529	(b) 525	1,273,188
1919 ..	65,830	135,428	121,030	3,224	734,066	7,686	(b) 829	1,068,102

(a) 1st January to 30th June. (b) Year ended 30th June.

3. Changes in Relative Positions of States as Gold Producers.—A glance at the figures in the table shewing the value of gold raised will sufficiently explain the enormous increase in the population of Victoria during the period 1851 to 1861, when an average of over 40,000 persons reached the State each year. With the exception of the year 1889, when its output was surpassed by that of Queensland, Victoria maintained its position as the chief gold-producer for a period of forty-seven years, or up to 1898, when its production was outstripped by that of Western Australia, the latter State from this year onward contributing practically half, and so far as recent years are concerned more than half the entire yield of the Commonwealth. New South Wales occupied the second place on the list until 1874, when Queensland returns exceeded those of the parent State, a condition of things that has been maintained ever since. South Australia has occupied the position of lowest contributor to the total gold yield of the Commonwealth since the year 1871. Taking the average of the last ten years, the relative position of each State in regard to the gold production of the Commonwealth was as follows :—

RELATIVE POSITION OF STATES AS GOLD PRODUCERS, 1910 TO 1919.

State.	Annual Average of Gold Production, 1910 to 1919.	Percentage on Commonwealth.	State.	Annual Average of Gold Production, 1910 to 1919.	Percentage on Commonwealth.
	Ozs.			Ozs.	
Commonwealth ..	1,920,349	100·0	New South Wales ..	128,513	6·7
Western Australia ..	1,152,359	60·0	Tasmania ..	23,281	1·2
Victoria	348,450	18·2	South Australia ..	5,991	0·3
Queensland ..	258,949	13·5	Northern Territory	2,806	0·1

4. Methods of Gold Mining adopted in Each State.—(i) *New South Wales.* In New South Wales the earlier "rushes" were to surface alluvial or shallow-sinking grounds. Many of these were apparently soon worked out, but there is reason to believe that in some instances payable results would be obtained by treating the rejected wash-dirt on more scientific principles. With the exhaustion of the surface deposits discoveries were made by sinking to what are called deep alluvial leads, representing the beds of old drainage channels in Pliocene and Pleistocene times. The first of these deep alluvial leads

was discovered at Forbes, in New South Wales, in 1862. The Tertiary deep leads at Gulgong were discovered in 1871. Cretaceous leads occur at Tibooburra, and detrital gold has been found in permo-carboniferous conglomerates at Tallawang. The method of dredging is at present being extensively used for winning gold from the beds of running streams, and from loose river flats and other wet ground where sinking would be impracticable. The system was introduced from New Zealand, where it was originally applied with great success on the Clutha River, and practically all the auriferous rivers of New South Wales have been worked by dredges. Hydraulic sluicing is employed also in several places, the necessary machinery being fitted to a pontoon for convenience in moving from place to place. The quantity of alluvial gold obtained, other than by dredging, amounted to 1,899 ozs. in 1919, the chief yields being—Peak Hill, 248 ozs.; Hill End, 243 ozs.; Windeyer, 140 ozs.; Major's Creek, 122 ozs.; Sofala, 158 ozs.; Mudgee, 150 ozs.; and Mt. McDonald, 100 ozs. The quantity obtained by dredging was 21,050 ozs.; the largest returns being obtained at Araluen, 3,172 ozs; Adelong, 8,023 ozs.; and Gundagai, 7,851 ozs. The dredges in operation during 1919 numbered 77, of which 16 were of the bucket type and 61 were suction plants. In the recovery of gold 14 bucket dredges and 1 pumping plant were employed, while 2 bucket dredges and 60 pumping plants were engaged in the winning of stream tin. The value of the plants in operation was estimated at £416,459. The quantity of gold won from quartz amounted to 23,086 ozs. At the present time the Cobar district is the chief centre of the production from quartz, the yields from the Cobar and Canbelego fields included therein being respectively 1,403 ozs. and 5,928 ozs. Next come the Hillgrove field with 4,345 ozs.; Hill End, 3,400 ozs.; and Gundagai, 1,567 ozs.

The table below shews as far as can be ascertained the yield from alluvial and quartz mining in each of the principal districts during 1919. Owing to the circumstance that it was impossible to obtain complete returns from all the mine and battery owners the total for the State necessarily falls short of that given in preceding pages.

GOLD WON IN NEW SOUTH WALES, ALLUVIAL AND QUARTZ, 1919.

District.	Alluvial.		Quartz.	Total.
	Other than by Dredging.	By Dredging.		
	Ozs.	Ozs.	Ozs.	Ozs.
Albert	21	..	3	24
Bathurst	318	..	1,880	2,198
Clarence and Richmond	60	..	93	153
Cobar	..	..	7,420	7,420
Hunter and Macleay	..	..	322	322
Lachlan	16	7,851	2,793	10,660
Mudgee	557	..	1,338	1,895
New England	33	3	..	36
Peel and Uralla	175	37	4,457	4,669
Southern	132	3,176	1,308	4,616
Tambaroora and Turon	462	..	3,412	3,874
Tumut and Adelong	125	8,206	60	8,391
Total	1,899	19,273	23,086	44,258

(ii) *Victoria*. Lode mining predominates in Victoria, although gold is also obtained from alluvial workings, both surface and deep leads. The deepest mines in Australia are found in the Bendigo district, where there are two shafts 4,614 and 4,318 feet deep respectively. Altogether there were some few years ago no less than fifty-three shafts in this district which had reached a depth of over 2,000 feet. A considerable amount of attention is given to dredging and hydraulic sluicing, particularly in the Beechworth, Maryborough, Castlemaine, Ararat, Stawell, Gippsland, and Ballarat districts, the number of plants in operation at the end of 1919 being 56, of which 16

were bucket dredges, 7 pumps, 27 jet elevators, and 6 sluicing by gravitation. The total quantity of gold won by dredging and sluicing in 1919 was 24,540 ozs. Tin to the value of £16,456 was also won. The yields from alluvial workings and quartz reefs, as returned (in crude ounces) from the chief mining districts of the State during last year, were as follows :—

GOLD WON IN VICTORIA, ALLUVIAL AND QUARTZ, 1919.

District.	Alluvial.	Quartz.	Total.
	Ozs.	Ozs.	Ozs.
Ararat and Stawell	3,864	5,174	9,038
Ballarat	4,356	3,583	7,939
Beechworth	22,983	7,962	30,945
Bendigo	826	63,823	64,649
Castlemaine	6,543	9,857	16,400
Gippsland	3,126	3,364	6,490
Maryborough	4,964	604	5,568
Total	46,662	94,367	141,029

The largest output from lode mines in 1919 was furnished by the Constellation (Bendigo) with 16,390 ozs., followed by the Carlisle and Great Northern in the same area, which yielded respectively 5,242 and 4,884 ozs. It was hoped that the consolidation of the mines in the "Central area" at Bendigo would result in a more extended treatment of the low-grade ore. No great development, has, however, taken place in this direction, and the success of the Bendigo Amalgamated Goldfields Co. which controls and works nearly all the mines has been due to the high-grade quartz raised from the Constellation mine, where 14,772 tons gave a yield of 16,390 ozs. Of the deep alluvial mines the Chiltern Valley (Beechworth) produced 4,158 ozs. In dredging, Cock's Pioneer, at Beechworth, was the most successful, with 7,593 ozs. Tin ore to the value of upwards of £15,000 was also won by this company.

(iii) *Queensland.* Operations in Queensland are at present chiefly confined to reefing, and to the production of gold in connexion with the smelting of copper and other ores, the yield from alluvial in 1919 being only 376 ozs., while the quantity produced from stone treated was 28,627 ozs.; from copper and other ores 90,981 ozs.; and from old tailings 1,046 ozs.; making a total production of 121,030 ozs. The yields from the principal fields are given below :—

GOLD WON IN QUEENSLAND, ALLUVIAL AND QUARTZ, 1919.

District.	Alluvial.	From Stone Treated.	From Copper and other Ores and old Tailings.	Total.
	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.
Charters Towers	25	8,070	..	8,095
Gympie	..	14,204	335	14,539
Mount Morgan	23	104	89,778	89,905
Ravenswood	9	451	15	475
Croydon	..	..	670	670
Etheridge, Oaks and Woolgar ..	75	1,955	4	2,034
Cloncurry	..	..	969	969
Gladstone	58	65	202	325
Clermont	36	1,575	..	1,611
Chillagoe	..	1,638	..	1,638
Mount Peter	..	388	..	388
Other districts	150	177	54	381
Total	376	28,627	92,027	121,030

As shown in the table the Mount Morgan field easily takes first place amongst Queensland gold-producing areas. During 1919 this field also produced copper to the value of over £506,000.

(iv) *South Australia.* In South Australia alluvial gold has been worked for many years in the gullies round Adelaide, while a fair amount of gold has been obtained by this method at Teetulpa, in the northern area The battery and cyanide returns as published in the *Mining Review* shew that the chief producing centres in 1919 were Deloraine and Tarcoola.

(v) *Western Australia.* The auriferous deposits of Western Australia may be grouped under three headings—(1) superficial deposits, (2) deposits in beds of conglomerate, and (3) lode and vein deposits. The first class includes a number of deposits of alluvial type, either in the beds of existing watercourses or in deep leads, up to 100 feet or more below present surface level. Associated with these are deposits of crystalline gold in "pug," oxide of iron, and soft weathered portions of underlying bed rock. Considerable areas of auriferous surface soil are also found, and these have apparently originated from the denudation by weathering of the bed rock and its associated veins. The shallow surface deposits have been worked by ground sluicing wherever water was available, but most of the ground has been worked by "dry-blowing." The pug and clayey bedrock are usually treated in puddling machines. In regard to (2) it may be noted that in several localities on the Pilbara goldfield and in one on the Yalgoo, gold has been found in conglomerate of the Nullagine series of rocks, now tentatively accepted as of Cambrian age. The gold is crystalline and is confined to the interstitial cementing material. Occasional occurrences of gold are met with in laterite conglomerate of tertiary and post tertiary age, and at Kintore in conglomerate of the same age. Lode and vein deposits alluded to in (3) are found in great variety in Western Australia. The gold is always found associated with iron pyrites in the unoxidised portions of the lodes, and often also with copper pyrites, arsenical pyrites and galena. Tellurides of gold occur at times. The principal auriferous rocks are of very great geological age, most probably pre-Cambrian, and possibly Archæan, and have all been subjected to intense metamorphism. It is found that the rich veins are not restricted to any one particular description of rock—granite, quartz, porphyry, quartz dolerite, diorite, &c., and even metamorphic sedimentary country rock, have been found to carry them in various parts of the State. The total production of gold from all sources during 1919 was 734,066 ounces, of which only about 0.1 per cent. was alluvial. The yields in each district were as shewn below :—

GOLD WON IN WESTERN AUSTRALIA, ALLUVIAL, QUARTZ, ETC., 1919.

Goldfields.	Alluvial.	Dollied and Specimens.	Crushed.	Total.
	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.
East Coolgardie	202	568	396,285	397,055
East Murchison	..	148	27,266	27,414
Mount Margaret	39	353	87,760	88,152
Murchison	72	1,214	49,284	50,570
North Coolgardie	42	550	22,427	23,019
Coolgardie	175	102	5,537	5,814
Phillips River	..	7	1,693	1,700
North-east Coolgardie	19	221	5,232	5,472
Yilgarn	2	..	54,001	54,003
Broad Arrow	70	1,266	10,393	11,729
Peak Hill	24	39	2,192	2,255
Pilbara	169	35	3,217	3,421
Dundas	..	1,118	11,412	12,530
Yalgoo	..	72	4,716	4,788
West Pilbara	26	..	69	95
Kimberley	151	..	..	151
Other goldfields	..	46	..	46
Total	991	5,739	681,484	688,214

The figures in the previous table are compiled from returns from the individual mines, and are somewhat incomplete; the total is therefore less than that shown on page 341, which represents mint and export returns.

(vi) *Tasmania.* The yield from Tasmania in gold mining is chiefly obtained from quartz reefing, and the returns from each district in 1919 are given below :—

GOLD WON IN TASMANIA, 1919.

District.	Total.	District.	Total.
	Ozs.		Ozs.
Beaconsfield	572	Lisle .. .. }	110
Mathinna	1,529	Golconda .. }	
Mt. Victoria .. }	376	Mt. Claude	101
Warrentinna .. }		North-West and West Coasts	5,466
Mt. Cameron .. }			
Lefroy	3	Total	8,157

The total production was equal to 7,686 ozs. fine. During 1919 the blister copper produced by the Mt. Lyell Mining and Railway Co. Ltd. contained approximately 5,251 ozs of gold.

(vii) *Northern Territory.*—The principal yields in 1919 were returned from Bridge Creek, 545 ozs., and Ambrookville, 317 ozs. Small quantities were produced also at Fletcher's Gully and Tanami.

5. **Remarkable Masses of Gold.**—Allusion has already been made in preceding Year Books to the discovery of "nuggets" and other remarkable masses of gold, but it is not proposed to repeat this information in the present issue. (See Year Book No. 4, page 500.)

6. **Modes of Occurrence of Gold in Australia.**—This subject has been alluded to at some length in preceding issues of the Year Book, but considerations of space will not permit of repetition in the present issue.

7. **Place of the Commonwealth in the World's Gold Production.**—In the table given below will be found the estimated value of the world's gold production, and the share of the Commonwealth therein during the ten years 1910 to 1919. The figures given in the table have been compiled chiefly from returns obtained directly by the Commonwealth Bureau of Census and Statistics from the gold-producing countries of the world.

WORLD'S GOLD PRODUCTION, 1910 TO 1919.

Year.	World's Production of Gold.	Gold Produced in Commonwealth.	Percentage of Commonwealth on Total.
	£	£	%
1910	93,341,573	11,557,650	12.38
1911	95,541,042	10,551,624	11.04
1912	96,854,563	9,879,928	10.20
1913	93,102,674	9,376,573	10.07
1914	91,300,350	8,728,946	9.56
1915	96,711,619	8,269,938	8.64
1916	92,568,926	7,075,960	7.64
1917	88,526,271	6,185,410	6.99
1918	77,530,366	5,408,157	6.98
1919	93,804,949	5,464,806	5.82

While the production of gold in the Commonwealth shews a considerable decrease during the twenty years from 1897 to 1919, the world's total production increased by over 94 per cent. in the same period. The following table will be found interesting as shewing the various foreign countries where the chief increases have taken place during the interval in question :—

GOLD YIELD, VARIOUS COUNTRIES, 1897 TO 1919.

Country.	1897.	1900.	1917.	1918.	1919.
	£	£	£	£	£
United States ..	11,787,000	16,269,000	16,912,000	13,841,000	14,905,000
Canada	1,240,000	5,742,000	3,138,000	2,972,000	3,916,000
Costa Rica	2,000	31,000	200,000	161,000	179,000
Colombia	..	..	1,031,000	958,000	4,021,000
Transvaal	11,654,000	1,481,000	38,306,000	35,759,000	42,548,000
Rhodesia	800	308,000	3,544,000	2,682,000	3,030,000
Gold Coast ..	85,000	38,000	1,549,000	1,338,000	1,508,000
Madagascar ..	8,500	142,000	126,000	88,000	92,000
India	1,571,000	1,893,000	2,222,000	2,060,000	1,504,000
Corea	208,000	371,000	691,000	604,000	604,000(a)
Japan	142,000	290,000	1,185,000	1,159,000	1,159,000(a)
Netherlands East Indies	24,000	112,000	529,000	431,000	392,000

(a) 1918 figures.

The largest increase amongst the more important producing countries was recorded in the Transvaal, where the production was nearly four times as great in 1919 as in 1897. During the last three years, however, as the table shews, there has been a general decline, except in Canada, Colombia, and Transvaal.

The next table shews the average yearly value in order of importance of the yield in the chief gold producing countries for the decennium 1910–19.

AVERAGE ANNUAL VALUE, GOLD YIELD, CHIEF PRODUCING COUNTRIES, 1910 TO 1919.

Country.	Value.	Country.	Value.
	£		£
Transvaal	37,346,000	Canada	3,128,000
United States	18,091,000	India	2,260,000
Australasia	9,584,000	Gold Coast	1,450,000
Commonwealth	8,249,000	Colombia	1,287,000
Russia	5,082,000	New Zealand	1,286,000
Mexico	3,499,000	Japan	1,098,000
Rhodesia	3,165,000		

The comparison has been restricted to countries where the average for the period is in excess of a million sterling.

8. **Employment in Gold Mining.**—The number of persons engaged in gold mining in each State in 1901 and during each of the last five years is shewn in the following table :—

PERSONS EMPLOYED IN GOLD MINING, 1901 AND 1915 TO 1919.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.	No.
1901 ...	12,064	27,387	9,438	1,000	19,771	1,112	200	70,972
1915 ..	2,888	8,755	2,766	200	11,323	215	99	26,246
1916 ..	2,317	6,402	1,900	150	9,824	176	99	20,868
1917 ..	1,823	6,069	1,375	150	8,752	155	92	18,416
1918 ..	2,540	3,547	929	100	7,790	125	84	15,115
1919 ..	1,656	3,065	792	100	7,242	73	60	12,988

§ 3. Platinum and the Platinoid Metals.

Platinum.—(i) *New South Wales.* The existence of platinum was first noted in New South Wales in 1851 by Mr. S. Stutchbury, who found a small quantity near Orange. Since the year 1878 small quantities of the metal have been obtained from beach sands in the northern coastal district. Platiniferous ore was noted in 1889 at Broken Hill. The principal deposits at present worked in the State are situated at Platina in the Fifield division, near Parkes, and the production in 1919 amounted to 213 ozs., valued at £3,150, while the total production recorded for the period 1894–1919 amounted to 14,893 ozs., valued at £47,734. The production in 1919 was only about a third of that in the preceding year, the falling-off being due to lack of water for treating the wash-dirt.

At Platina, gold is found in association with the platinum, and it is estimated that there are 200 acres of metalliferous country sufficiently rich to yield a satisfactory return, provided it were worked on a large scale with an abundant water supply. Small quantities of the metal are obtained in beach mining in the Ballina Division.

(ii) *Victoria.* In Gippsland, Victoria, the metal has been found in association with copper. The production of platinum in 1913 amounted to 127 ozs., and was contained in matte produced by the Gippsland Copper, Platinum, and Gold Mining and Smelting Company, from ores raised from the old mine at Cooper's Creek. There was no production during the last six years.

(iii) *Queensland.* Platinum associated with osmiridium has been found in the beach sands between Southport and Currumbin, in creeks on the Russell goldfield near Innisfail, and in alluvial deposits on the Gympie goldfield.

2. Osmium, Iridium, etc. (i) *New South Wales.* Small quantities of osmium, iridium, and rhodium are found in various localities. As far back as 1860, the Rev. W. B. Clarke stated that he found native iridium. Platinum, associated with iridium and osmium, has been found in the washings from the Aberfoil River, about 15 miles from Oban; on the beach sands of the northern coast; in the gem sand at Bingara, Mudgee, Bathurst, and other places. In some cases, as for example in the beach sands of Ballina, the osmiridium and other platinoid metals amount to as much as 40 per cent. of the platinum, or about 28 per cent. of the whole metallic content.

(ii) *Victoria.* In Victoria, iridosmine has been found near Foster, and at Waratah Range, South Gippsland.

(iii) *Tasmania.* For many years osmiridium has been known to exist in the bed of the Savage River, on the West Coast, and in rivulets and creeks in the serpentine country, but it was not until early in 1911 that efforts were made to work the deposits. During that year the price paid for the mineral reached £7 10s. per oz., and about 100 men were engaged in the search for it. The quantity produced amounted to 271 ozs., valued at £1,188. In 1912 the production was 779 ozs., valued at £5,742, or an average of £7 7s. 9d. per oz. The yield in 1918 amounted to 1,607 ozs., valued at £44,833, and in 1919 to 1,670 ozs., valued at £39,614. During 1919 the metal won was obtained from the Savage River, Mt. Stewart, and Wilson River districts. Small quantities also are being obtained in the Dundas district. Owing to the war the market in 1914 was for a time closed, but a parcel of 13 ozs. forwarded to America was sold at an average of £5 13s. 6d. per oz. The declining production in 1915 and 1916 was due to difficulty in disposing of the metal. In 1917 the price increased from £11 to £18 10s. per oz., and for selected parcels £22 10s. per oz. was paid, while in 1918 the remarkable price of £37 5s. per oz. was reached. The average price in 1919 was £23 14s. 5d. per oz. Besides a steady and increasing use in the manufacture of fountain pens there is a demand for iridium and osmiridium for hard platinum jewellery.

§ 4. Silver.

1. **Occurrence in Each State.**—Particulars regarding the occurrence of silver in each State will be found in preceding Year Books, Nos. 1 to 5, but considerations of space preclude the repetition of this matter in the present volume.

2. **Development of Silver Mining.**—In illustration of the development of silver mining in Australia the following table has been compiled, shewing the production of silver, silver-lead and ore, and lead from each State during the years 1881, 1891, 1901, and the five years ending 1919:—

PRODUCTION OF SILVER AND LEAD, AUSTRALIA, 1881 TO 1919.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
1881 ..	14,651	5,021	13,494	1,182	11,224	50	..	45,622
1891 ..	3,621,614	6,277	50,000	1,787	250	52,284	4,140	3,736,352
1901 ..	1,954,904	6,657	69,234	3,196	7,609	206,228	710	2,248,598
1915 ..	3,321,101	1,771	34,610	902	63,629	91,689	(a)	3,513,702
1916 ..	4,084,623	3,338	50,588	5,173	109,221	153,796	(b) 1,068	4,407,807
1917 ..	5,110,096	1,406	55,181	12,351	178,872	152,122	(b) 275	5,510,303
1918 ..	5,739,509	1,319	36,645	10,492	189,636	127,176	(b) 200	6,104,977
1919 ..	1,647,878	1,607	28,511	180	107,508	189,967	(b) 132	1,975,783

(a) 1st January to 30th June. (b) Year ended 30th June.

The heavy falling-off in the production for 1919 as compared with previous years was due to the suspension of operations owing to industrial troubles at the principal mines on the Broken Hill field.

It must be understood that the totals for New South Wales in the above table represent the *net* value of the product (excluding zinc) of the silver-lead mines of the State. In explanation of the values thus given, it may be noted that the metallic contents of the larger portion of the output from the silver-lead mines in the State are extracted outside New South Wales, and the Mines Department considered, therefore, that the State should not take full credit for the finished product. Hence the *net* value referred to above relates to that of the ore, concentrates, and bullion, as declared by the several companies to the Customs Department at date of export. The real importance of the State as a producer of silver, lead, and zinc is thus to some extent lost sight of. The next table, however, which indicates the quantity of these metals locally produced, and the contents by average assay of concentrates exported during the last five years, will shew, as regards New South Wales, the estimated total producton and the value accruing to the Commonwealth from the three metals:—

TOTAL PRODUCTION FROM SILVER-LEAD MINES OF NEW SOUTH WALES, 1915 TO 1919.

Year.	Metal Produced within Australia.				Contents of Concentrates exported.			
	Silver.	Lead.	Zinc.	Value.	Silver.	Lead.	Zinc.	Value.
	ozs. fine.	tons.	tons.	£	ozs. fine.	tons.	tons.	£
1915 ..	5,302,199	101,090	5,308	3,267,736	1,710,058	9,819	71,049	1,051,849
1916 ..	6,882,518	128,438	5,277	5,238,276	1,725,374	16,428	69,141	1,139,607
1917 ..	7,562,286	138,006	4,694	5,765,094	983,693	6,181	43,912	668,934
1918 ..	8,724,018	155,306	5,622	6,744,034	535,949	3,178	21,926	232,210
1919 ..	5,866,947	80,175	(a) 7,119	4,109,466	417,871	2,425	16,146	258,751

(a) Including 169 tons of Zinc Oxide valued at £3,112.

The figures given above are quoted on the authority of the Mines Department of New South Wales, which in the year 1918 amended the totals for silver previously published for the years 1915–17, while in 1919 considerable modifications were made in the figures relating to quantity and value of concentrates exported.

3. Chief Centres of Silver Production.—Broken Hill, in New South Wales, is the great centre of silver production in Australia.

(i) *New South Wales.* (*a*) *Broken Hill.* A description of the silver-bearing area in this district is given in earlier issues of the Year Book. During 1913 the output of ore from the mines in this division amounted to 1,744,000 tons, the highest recorded in the history of the field, but owing to the dislocation caused by the war the quantity raised in 1914 decreased to 1,442,000 tons. For the four years 1915–8 the ore raised averaged over 1,200,000 tons, but, owing to the cessation of operations through industrial troubles the production in 1919 dwindled to 415,400 tons.

Although the returns are not complete in all cases, the following table relating to the mines at Broken Hill will give some idea of the richness of the field :—

RETURNS OF BROKEN HILL SILVER MINES TO END OF 1919.

Mine.	Authorised Capital.	Value of Output to end of 1919.	Dividends and Bonuses Paid to end of 1919.
	£	£	£
Broken Hill Proprietary Co. Ltd.	3,000,000	(*a*)48,194,848	11,865,887
Broken Hill Proprietary Block 14 Co. Ltd. ..	155,000	3,878,183	622,060
British Broken Hill Proprietary Co. Ltd. ..	339,000	4,779,254	821,280
Broken Hill Proprietary Block 10 Co. Ltd. ..	1,000,000	4,885,102	1,407,500
Sulphide Corporation Ltd. (Central Mine) ..	1,050,000	(*b*)20,608,024	2,709,375
Broken Hill South Silver Mining Co. ..	800,000	10,050,501	2,535,000
North Broken Hill Mining Co. Ltd. ..	600,000	6,495,775	1,978,940
Broken Hill Junction Lead Mining Co. ..	150,000	1,143,723	87,500
Junction North Broken Hill Mine	375,000	2,631,520	152,735
The Zinc Corporation Ltd.	(*c*)	2,973,102	10,000
Barrier South Ltd.	168,000	151,517	50,000
Totals	7,637,000	(*b*)105,791,549	22,240,877

(*a*) The value of the ores purchased during the years 1908 to 1914 is not included. (*b*) Output understated owing to incomplete returns. (*c*) Not available.

The returns relating to dividends and bonuses paid are exclusive of £1,744,000 representing the nominal value of shares in Block 14, British, and Block 10 companies, allotted to shareholders of Broken Hill Proprietary Company.

(*b*) *Yerranderie.* The mines in the Yerranderie division in the Southern Mining District produced 286,955 ozs. of silver in 1919, besides 714 ozs. of gold, and 861 tons of lead, the total production being valued at £78,528.

(*c*) *Cobar.* A considerable quantity of silver is obtained from the Great Cobar Mine and attached properties, the production in 1914 amounting to 24,305 ozs. Owing to the dislocation of the industry caused by the war the yield in 1915 fell to 1,838 ozs., but it rose again in 1916 to nearly 48,000 ozs., and in 1918 to 98,000 ozs. In 1919, however, the return fell to 18,000 ozs.

(*d*) *Sunny Corner.* In this division of the Bathurst Mining District 60,000 ozs. of silver, valued at £12,050, were produced during 1919.

(*e*) *Orange Division.* From the Lewis Ponds mine in this division of the Bathurst Mining District ore containing about 29,000 ozs. of silver, valued at £6,000, was raised in 1919.

(*f*) *Other Areas.* Small quantities were produced during the year in the Condobolin division of the Lachlan District, in the Hillgrove and Tingha divisions of the Peel and Uralla Mining District, from Leadville in the Mudgee division, from the Tumbarumba area in the Tumut and Adelong District, and in the New England Mining District.

(ii) *Tasmania.* The silver produced in 1919 amounted to 525,343 ozs., valued at £125,564, and the lead to 2,357 tons, valued at £64,403. The principal producers of

silver were the Magnet Mines, with a yield of 98,625 ozs.; the Zeehan Mines, 73,919 ozs.; Mt. Claude, 51,994 ozs.; and Mt. Farrell, 42,960 ozs. Lead to the amount of 808 tons was produced by the Zeehan Mines; 528 tons by the Magnet Mines; 447 tons by the North Mt. Farrell, and 365 tons by the Mt. Claude Mines.

(iii) *Queensland.* The yield for the chief silver-producing centres in 1919 was as follows :—Cloncurry, silver £3,947; Etheridge, silver £1,258, lead £2,030: Mt. Morgan, silver £5,606; Herberton, silver £5,175; Stanthorpe, silver £1,176. Towards the end of the year 1918 a discovery of argentiferous lead ore was made at Indooroopilly, one of the suburbs of Brisbane. This deposit yielded 60 tons of lead, valued at £2,117, and 10,082 ozs. of silver, valued at £2,604.

(iv) *South Australia.* Rich specimens of silver ore have been discovered at Miltalie and Poonana, in the Franklin Harbour district, also at Mount Malvern and Olivaster, near Rapid Bay, and in the vicinity of Blinman and Farina. The surrounding district is highly mineralized, but, so far, has not been thoroughly prospected. The production of silver in 1919 was practically negligible.

(v) *Western Australia.* The quantity of silver obtained as a by-product and exported in 1919 was 223,332 ozs., valued at £55,342. In addition, lead and silver-lead to the value of £3,704, and 1,780 tons of pig lead, valued at £48,462, were exported.

(vi) *Northern Territory.* Silver-lead ores are found near Pine Creek, and at Mount Shoebridge near Brock's Creek railway station. Production in 1919 was small, amounting to a little over 12 tons, valued at £132.

4. World's Production of Silver.—The world's production of silver during the last ten years for which particulars are available is estimated to have been as follows :—

WORLD'S PRODUCTION OF SILVER, 1910 TO 1919.

Year	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.
World's production in 1,000 fine ozs.(a)	240,223	234,214	250,979	214,391	171,429	185,443	168,693	174,188	197,394	174,517 (b)

(a) Add 000 to figures for fine ounces. (b) Incomplete.

The Commonwealth's share in the world's silver production in 1919 was estimated at 7,000,000 ounces, or about 4 per cent. on the total production, as compared with 11,000,000 ounces, or about 6 per cent of the total in 1918, the falling-off being due to the lessened production from the Broken Hill field resultant on industrial disturbances. The figures, for the last three years which are given on the authority of *The Mineral Industry*, have been considerably amended since the last issue.

According to returns furnished by the secretary of the Australian Metal Exchange silver to the amount of 6,685,000 ozs. was extracted in Australia during 1919, while concentrates exported or sold for export were estimated to contain 1,162,000 ozs.

5. Prices of Silver.—As the production of silver is dependent to a very large extent on the price realised, a statement of the average price per standard ounce in the London market at various periods and during the last seven years is given below :—

PRICE OF SILVER, 1881 TO 1919.

Year	1881.	1891.	1901.	1911.	1914.	1915.	1916.	1917.	1918.	1919.
Pence per standard oz. ..	51¾	45$\frac{1}{16}$	27$\frac{3}{16}$	24$\frac{9}{16}$	25$\frac{5}{16}$	23$\frac{11}{16}$	31$\frac{5}{16}$	40⅞	47½	57$\frac{1}{16}$

During the month of November, 1906, owing to the small sales in New York, and also to the fact that the Indian, American, and Mexican Governments were all buying silver, the price rose to 33¼d., the highest realised since 1893, when the average stood at 36$\frac{1}{16}$d. The high average in 1917 was succeeded by a further rise to 47½d. in 1918, the monthly averages ranging from 43.2d. in March to 49¼d. in September and October. Prices in 1919 shewed a sensational rise. Beginning with an average of about 48d. per ounce during each of the first four months of the year, prices rose rapidly until in September the high average of 61.7d. was reached, followed by 64d. in October, 70d. in November, and 76.4d. in December.

6. Employment in Silver Mining.—The number of persons employed in silver mining in 1901 and during each of the last five years is given below :—

NUMBER OF PERSONS EMPLOYED IN SILVER MINING, 1901 AND 1915 TO 1919.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.	No.
1901 ..	6,298	..	40	150	...	2,414(a)	(b)	8,902(c)
1915 ..	5,564	..	49	25	70	519	86	6,313
1916 ..	6,461	..	62	25	(d)244	555	86	7,433
1917 ..	7,619	..	71	..	(d)328	646	33	8,697
1918 ..	7,585	..	98	..	(d)382	631	10	8,706
1919 ..	6,556	..	145	..	74	798	3	7,576

(a) Including copper miners. (b) Included in South Australia. (c) Including copper miners in Tasmania. (d) Lead ore.

As the table shews, the bulk of the employment was in New South Wales and Tasmania, the quantity of silver raised in the other States, excepting Queensland, being unimportant.

§ 5. Copper.

1. Production of Copper.—The production of copper in the various States of the Commonwealth has been influenced considerably by the ruling prices, which have undergone extraordinary fluctuations. The quantity and value of the local production as reported and credited to the mineral industry in earlier years and for 1915 to 1919 are shewn in the following tables :—

PRODUCTION OF COPPER, AUSTRALIA, 1881 TO 1919.

State.		1881.	1891.	1901.	1908.	1915.	1916.	1917.	1918.	1919.
QUANTITY.										
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
N.S.W.	Ingot & Matte	4,124	2,363	6,087	5,679	2,463	5,617	6,576	6,510	1,460
	Ore	1	347	645	392	4,510	554	..	..	..
Victoria	Ore	583	60	..	983	..	..	..	..	..
Q'land	Ingot & Matte	331	85	3,087	14,698	19,704	19,520	19,062	18,980	9,997
	Ore	..	35	1,997	..	..	..	..	..	..
S. Aust.	Ingot & Matte	3,824	8,592	9,741	5,628	7,725	7,279	7,213	7,169	2,617
	Ore .. .	21,636	13,035	1,869	..	..	..	..	..	..
W. Aust.	Ingot & Matte	..	..	880	479	946	457	585	478	4
	Ore	..	263	2,661	2,503	737	650	966	1,648	455
Tasmania	Ingot & Matte	..	..	9,981	8,833	7,901	6,305	5,845	5,559	5,071
	Ore	..	..	10,029	1,186	66	97	771	444	..
Northern Territory	Ingot & Matte	..	..	..	100	..	..	..	..	..
	Ore	..	257	483	424	(a)831	(b)950	(b)48	(b)619	(b)159
VALUE.										
		£	£	£	£	£	£	£	£	£
N.S.W...		267,884	119,195	412,292	502,812	598,733	586,127	814,154	696,580	139,296
Victoria		8,186	216	..	1,994	2,829	..	..	..	..
Q'land ..		19,637	4,064	182,256	882,801	1,660,178	2,265,422	2,208,232	2,087,751	952,501
S. Aust.		418,296	235,817	491,617	338,000	488,986	822,527	902,496	828,556	228,930
W. Aust.		..	4,462	110,769	57,091	142,363	64,833	85,738	66,146	10,106
Tasmania		..	..	1,010,037	609,651	375,664	886,454	847,754	776,106	558,694
Nor. Terr.		..	3,619	8,460	7,968	482	(a)8,162	(b)5,517	(b)9,648	(b)2,349
C'wealth		714,003	367,373	2,215,431	2,400,417	3,269,235	4,633,525	4,863,890	4,464,787	1,891,875

(a) 1st January to 30th June. (b) Year ended 30th June.

A short account of the discovery of copper in the different States is given in earlier Year Books.

2. Sources of Production.—(i) *New South Wales.* The principal seat of the copper-mining industry at the present date is in the Cobar district, the value of the deposits there being first recognised in 1869. The value of the output from this district in 1919 was £127,000, out of a total for the State of £139,000. The yield from copper in 1919 was very small as compared with the previous year's total of nearly £697,000, the decline being due to the fall in price of the metal in the early part of 1919, coupled with shipping difficulties and shortage of water. Values of the more important yields furnished during the year were as follows :—Great Cobar Ltd., £69,300 ; C.S.A., £41,804 ; Cobar Gladstone, £10,557 ; Mount Royal Mines, Tottenham, £7,250.

(ii) *Queensland.* The yield in this State amounted in 1919 to 9,997 tons, valued at £952,501, to which the Mount Morgan field contributed 5,332 tons, valued at £506,540. Next in order were Cloncurry with 4,346 tons, valued at £415,653 ; Gladstone, 175 tons, valued at £16,672 ; and Herberton, 94 tons, £8,945.

The total production in 1919 was little more than half that of the preceding year, the fall being due to the decline in price of the metal.

The Cloncurry district—reckoned the richest and most extensive cupriferous area in Australia—under normal circumstances produces more than half the copper output of the State, and its yield far exceeds in value the total gold output.

(iii) *South Australia.* Taking the entire period over which production extended, the yield of copper in South Australia easily outstrips that of any other State in the Commonwealth. In recent years, however, Queensland, Tasmania, and New South Wales have come to the front as copper producers, as the table on the preceding page will shew. Deposits of copper ore are found over a large portion of South Australia. A short account of the discovery, etc., of some of the principal mining areas, such as Kapunda, Burra Burra, Wallaroo, and Moonta, is given in preceding issues of the Official Year Book. During 1919 the output amounted to 2,517 tons, valued at £228,930, the bulk of the production being from the Wallaroo and Moonta Company which in normal times employs over 1,900 hands. Owing to the fall in price of copper during the early months of 1919, and the difficulty in obtaining supplies of fuel, operations were considerably reduced. Recently a discovery of rich ore was made at Dome Rock near Boolcoomatta Station.

(iv) *Western Australia.* The value of copper and ore exported from this State in 1919 was £10,105. According to the returns, the production in the West Pilbara field was 1,031 tons, valued at £15,807, while the Phillips River field shewed a production of 215 tons, valued at £4,093. The Peak Hill and Murchison fields also produced small tonnages.

(v) *Tasmania.* The quantity of copper produced in Tasmania during 1919 was 5,027 tons, valued at £504,961, the bulk of the production being due to the Mount Lyell Mining and Railway Co. Ltd. This Company treated 178,972 tons of ore in 1919, and produced 5,071 tons of blister copper, containing copper, 5,014 tons; silver, 228,652 ozs. ; and gold, 5,251 ozs., the whole being valued at £579,768. The employees in 1919 numbered 1,545, of whom 752 were miners, 644 were engaged in the reduction works, and 149 in the railway department.

(vi) *Northern Territory.* Copper has been found at various places, including Copperfield, 5 miles south-east of Pine Creek, Mount Diamond and Burns Wolfram, 45 miles east of Pine Creek, at Coronet Hill, Daly River, Maude Creek, Kilgour Creek, Woolagorang, and Borroloola. The total production in 1919 was 159 tons of ore, valued at £2,349, raised chiefly at Mt. Diamond, Daly River, and Woolagorang.

3. *Prices of Copper.*—*The great variation in price that the metal has undergone is shewn in the following table, which gives the average price in London and New York during 1901 and in each of the last five years. The figures are given on the authority of The Mineral Industry.*

FLUCTUATION IN VALUE OF COPPER, 1901 AND 1915 TO 1919.

Year.	London Price per Ton Standard Copper.	New York Price in Cents per lb. Electrolytic Copper.
	£	Cents.
1901	66.79	16.11
1914	61.52	13.60
1915	72.53	17.28
1916	116.03	27.20
1917	124.89	27.18
1918	115.53	24.63
1919	90.80	18.69

4. **World's Production of Copper.**—The world's production of copper in 1901, and during the five years 1915–19, is estimated to have been as follows :—

WORLD'S PRODUCTION OF COPPER, 1901 AND 1915 TO 1919.

Year	1901.	1915.	1916.	1917.	1918.	1919.
World's production—(short tons)	583,517	1,206,793	1,552,347	1,582,595	1,537,884	1,085,000

The Australasian production is estimated at about 2 per cent. of the total.

5. **Employment in Copper Mining.**—The number of persons employed in copper mining during 1901 and in each of the last five years was as follows :—

PERSONS ENGAGED IN COPPER MINING, 1901 AND 1915 TO 1919.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.	No.
1901 ..	2,964	4	814	4,000	321	(a)	(b)	8,103(c)
1915 ..	914	..	2,149	2,000	144	1,758	97	7,062
1916 ..	1,661	..	2,922	2,000	113	1,719	97	8,512
1917 ..	2,074	..	3,154	2,000	154	1,671	92	9,145
1918 ..	1,529	..	3,209	2,000	158	1,597	60	8,553
1919 ..	1,148	..	2,521	400	72	1,571	12	5,724

(a) Included with silver miners. (b) No returns. (c) Excluding Tasmania and Northern Territory.

§ 6. Tin.

1. Production of Tin.—The development of tin mining is, of course, largely dependent on the price realised for the metal, and as in the case of copper, the production has been subjected to somewhat violent fluctuations. The tables below shew the quantity and value of the production as reported to the Mines Departments in each of the Commonwealth States during the years 1881, 1891, 1901, and 1915 to 1919 :—

TIN PRODUCED IN AUSTRALIA, 1881 TO 1919.

State.		1881.	1891.	1901.	1915.	1916.	1917.	1918.	1919.
				QUANTITY.					
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
New South Wales	Ingots	5,824	1,454	649	857	900	1,109	1,182	1,146
	Ore	609	203	11	1,331	1,220	963	738	1,546
Victoria ..	Ingots	70	..	..	..	..	..	..	..
	Ore	20	1,678	77	96	122	139	135	113
Queensland	Ingots	479	193	477	(b)	(b)	(b)	(b)	(b)
	Ore (a)	2,977	2,043	1,184	2,125	1,707	1,177	1,311	994
Western Australia	Ingots	..	..	97	..	..	..	..	..
	Ore	..	204	507	420	463	383	415	318
Tasmania ..	Ingots	4,120	3,236	1,789	2,103	2.219	2.637	2.256	1,580
	Ore	4	56	79	(c)	(c)	(c)	(c)	(c)
Northern Territory	Ore	..	29	80	(d) 58	(e)147	(e)270	(e)246	(e)162
				VALUE.					
		£	£	£	£	£	£	£	£
New South Wales	..	568,795	133,963	76,544	266,780	306,497	373,696	548,876	416,628
Victoria ..	..	7,620	5,092	4,181	9,447	12,955	19,709	24,481	17,561
Queensland ..	..	193,609	116,387	93,723	183,472	181,401	160,600	251,755	143,167
Western Australia	..	..	10,200	52,102	41,391	49,101	45,288	76,952	47,269
Tasmania ..	..	375,775	292,990	216,186	292,306	350,852	427,017	488,798	395,794
Northern Territory	..	..	1,870	5,498	(d) 5,545	(e)14,700	(e)27,120	(e)41,432	(e)30,021
Total	..	1,145,889	560,502	448,234	798,941	915,506	1,054,330	1,432,294	1,050,435

(a) Dressed tin ore, about 70 % tin. (b) Included with ore. (c) Included with ingots. (d) 1st January to 30th June. (e) Year ending 30th June.

2. Sources of Production.—(i) *New South Wales.* A large proportion of the output in New South Wales was obtained by dredging, the quantity so won in 1919 being valued at £174,013. In the Tingha division of the Peel and Uralla district the yield amounted to 627 tons, valued at £99,058. The Emmaville division in the new England district shewed a yield of 995 tons, valued at £166,754, the Vegetable Creek mine in this area being the chief producer of tin in the State with an output in 1919 of 360 tons, valued at £58,880. In the Wilson's Downfall division, 156 tons, valued at £24,1[illegible]2, were raised. The Glen Innes division, also in the New England district, returned a yield of 161 tons, valued at £25,325, and the Torrington division 95 tons, valued at £18,300. The Ardlethan field, in the Lachlan division, produced ore and concentrates to the value of £86,009.

(ii) *Victoria.* In Victoria lode tin has been discovered at Mt. Wills, Beechworth, Eldorado, Chiltern, Stanley, and other places in the north-eastern district ; and stream tin has been found in a large number of places, including those just mentioned in the north-eastern district. The bulk of the production in 1919 was obtained by dredging and sluicing, the Cock's Pioneer Gold and Tin Co. in the Eldorado district contributing 98 tons, valued at £15,162. Small quantities were also won in the Beechworth District, and at Mount Cudgewa and Walwa.

(iii) *Queensland.* The chief producing districts in Queensland during 1919 were Herberton, 525 tons, valued at £71,994; Stanthorpe, 118 tons, £18,007; Cooktown, 127 tons, £19,329; Chillagoe, 124 tons, £16,353; and Kangaroo Hills, 92 tons, £16,299. The production of tin was adversely affected in 1919 by the prolonged dry weather, and also by a shortage of explosives during the latter half of the year.

(iv) *Western Australia.* The export of tin ore for the State during 1919 amounted to 318 tons, valued at £47,269. The production from the Greenbushes field amounted to 245 tons, valued at £34,959, and from the Pilbara field 37 tons, valued at £5,871. There was no production from the other fields in 1919.

(v) *Tasmania.* During 1919 the quantity of metallic tin won amounted to 1,580 tons, valued at £395,794. The bulk of the production in 1919 came from the North-Eastern Division with 679 tons, valued at £174,319. Of the total yield in this division, 324 tons were contributed by the Pioneer and Gladstone districts, 272 tons by the Ringarooma, Derby, and Branxholm districts, and small quantities from Moorina district and Straits Islands. The next highest output was returned from the North-Western division with 516 tons, to which the celebrated Mt. Bischoff contributed 351 tons, and the Mt. Bischoff Extended, 146 tons. In the Eastern division, the Avoca mines produced about 75 tons out of a total of 223 tons. The mines in the Western division produced 123 tons of metallic tin in 1919.

(vi) *Northern Territory.* The yield of tin ore in 1919 amounted to 162 tons, valued at £30,021, of which the Marranboy field contributed 75 tons, valued at £15,000, and Mt. Wells about 23 tons, valued at £3,700. Small yields were returned also from Crest of Wave, Horseshoe Creek, Hayes Creek, Umbrawarra, and other districts. Two batteries for the treatment of tin ore have been erected by the Government, one at Marranboy, costing £20,163, and one at Hayes Creek, at an expense of £3,294.

3. World's Production of Tin.—According to *The Mineral Industry* the world's production of tin during each of the last five years was as follows:—

WORLD'S TIN PRODUCTION, 1915 TO 1919.

1915.	1916.	1917.	1918.	1919.
Tons.	Tons.	Tons.	Tons.	Tons.
113,319	114,108	124,283	121,524	113,893

The yields from the chief producing countries in each of the last three years were as follows:—

	1917.	1918.	1919.
Malaya	39,800	37,300	36,900
Bolivia	27,800	29,300	27,500
Banka	13,200	13,200	11,600
Siam	8,800	9,100	8,800
Cornwall	3,900	4,000 (a)	3,300 (a)
Billiton	5,500 (a)	6,900 (a)	6,900 (a)
Nigeria	6,500	6,000 (a)	5,000 (a)
China	11,000 (b)	8,700 (b)	8,000 (b)
Australia	4,000 (a)	4,300 (a)	4,000 (a)
South Africa	1,600	1,200	1,000
India	1,200	1,000 (a)	500 (a)

(a) Estimate. (According to returns furnished by the Australian Metal Exchange the figures for Australia for the three years were 4,000, 4,600, and 4,100 tons respectively.) (b) Shipments to Europe and U.S.A.

Based on the results for the last three years, Australia's share of the world's tin production would appear to be about 3¼ per cent.

4. **Prices of Tin.**—The average price of the metal in the London market for the years 1897 and 1907 and from 1910 to 1919 was as follows:—

PRICE PER TON OF TIN, 1897 TO 1919.

Year.	Price per Ton.	Year.	Price per Ton.
	£ s. d.		£ s. d.
1897	61 8 0	1914	156 12 7(a)
1907	172 12 9	1915	164 4 0
1910	155 6 2	1916	182 3 5
1911	192 7 0	1917	237 13 1
1912	209 8 5	1918	329 11 2
1913	206 5 7	1919	257 9 8

(a) Quotations incomplete.

According to *The Mineral Industry* the monthly average in December, 1917, reached £298 10s. 3d. per ton. Conditions in 1917 were, however, quite abnormal, and, instead of London prices ruling the market, each consuming country tended to fix its own rates, with the result that widely different quotations were recorded from London, New York, France, and Italy. Owing to various causes such as shortage of labour, plant, and supplies, increases in wages, difficulty of obtaining information as to the relative position in the producing centres, interference with the ordinary course of trade, &c., prices in 1918 mounted to phenomenal heights. Quotations in January averaged £293 6s. 1d. per ton and increased rapidly until May when the price reached £364 7s. 8d. A falling-off in the next two months was succeeded by a rise to the sensational figure of £380 16s. 8d. in August. Thenceforward a sharp decline was experienced, and for the closing month of the year the average was recorded as £267 14s. 3d. In January, 1919, the average price was given as £248 9s. 11d., but the market fell in the succeeding months until July, when there was a rise to £253 5s. 1d. An upward tendency was manifested in the latter months of the year, the average for December being £314 5s. 1d.

5. **Employment in Tin Mining.**—The number of persons employed in tin mining in 1901 and during the last five years is shewn below:—

PERSONS ENGAGED IN TIN MINING, COMMONWEALTH, 1901 AND 1915 TO 1919.

Year.	N.S.W.	Victoria.	Qld.	W. Aust.	Tas.	Nor. Ter.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.
1901	1,428	..	1,148	413	1,065	..	4,054
1915	1,648	27	1,218	188	1,221	154	4,456
1916	1,938	135	1,093	235	1,217	154	4,772
1917	1,770	42	878	211	1,311	151	4,372
1918	2,352	52	1,110	292	1,260	190	5,256
1919	2,171	38	1,114	209	1,303	190	5,025

§ 7. Zinc.

1. **Production of Zinc.**—The production of zinciferous concentrates is practically confined to the Broken Hill district of New South Wales, where zincblende forms one of the chief constituents in the enormous deposits of sulphide ores. During the earlier years of mining activity on this field a considerable amount of zinc was left unrecovered in tailings, but from 1909 onwards improved methods of treatment resulted in the profitable extraction of the zinc contents of the accumulations at the various mines.

As the metallic contents of the bulk of the concentrates, etc., raised in the Broken Hill District are extracted outside New South Wales, the mineral industry of that State

cannot be credited with the value of the finished product. The figures given hereunder, therefore, refer to the quantity and value of the zinc concentrates actually exported during the years specified.

NEW SOUTH WALES.—EXPORTS OF ZINC CONCENTRATES, ETC., 1889 TO 1919.

Year.	Quantity of Zinc Concentrates, &c., Exported.	Value.	Year.	Quantity of Zinc Concentrates, &c., Exported.	Value.
	Tons.	£		Tons.	£
1889	97	988	1916	209,741	961,849
1891	219	2,622	1917	113,531	441,486
1899	49,879	49,207	1918	87,019	295,413
1915	190,916	1,111,589	1919	72,294	247,395

A statement of the quantity of zinc locally extracted, and the estimated zinc contents of concentrates exported or sold for export during the five years 1916–20, will be found in § 17 hereinafter.

At the Silver Spur mine at Texas, in the Stanthorpe division in Queensland, part of the ore is high in zinc and lead, but low in silver. Profitable extraction of the zinc and lead depends, however, on railway connexion with the mine. Zinc sulphide is produced by the Mount Garnet Mine in the Herberton district, and during 1916 several hundred tons of good quality ore were raised, but until a suitable treatment plant has been erected, it is stated that production cannot be economically undertaken.

During the year 1916, a small quantity of zinc, valued at £630, was produced in Western Australia, but there was no production in the years 1917 to 1919.

The Tasmanian mineral returns for 1919 included an item of 285 tons of zinc ore, valued at £13,110, raised at the Read Rosebery Mine.

Investigations in regard to the Read-Rosebery zinc-lead deposits in Tasmania have proved the existence of 1,680,000 tons of ore, which, added to an estimated quantity of 915,000 tons of "probable" ore, make a total supply of 2,595,000 tons. It is stated that the metallurgical treatment of the ore can be successfully carried out, and that the deposits are amongst the richest and most important in the world.

2. Prices of Zinc.—During the four years 1911 to 1914, the price of zinc averaged £23 15s. per ton, ranging from £21 in 1914 to £26 3s. 4d. in 1912. Owing to the heavy demand and other circumstances arising out of the war, the prices in 1915 and 1916 reached the very high average of £67 11s. 1d. and £72 1s. 5d. per ton respectively. For 1917 the average recorded was £52 8s. 3d., for 1918, £54 3s. 7d., and for 1919, £42 17s. 7d. per ton.

§ 8. Iron.

1. General.—The fact that iron-ore is widely distributed in the Commonwealth has long been known, and extensive deposits have been discovered from time to time at various places throughout the States. It will appear, however, from what is stated below, that until quite recently, little has been done in the way of converting these deposits into a marketable commodity.

(i) *The Manufactures Encouragement Act 1908–14.* It was hoped that the passing by the Commonwealth Parliament of the Manufactures Encouragement Act, which came into force on the 1st January, 1909, would assist in firmly establishing the iron industry in Australia on a remunerative basis, both in the smelting of pig iron and in the production of bar iron and steel from Australian ore. The Act referred to, together with its amendment in 1912, provided for the payment up to June, 1914, of bounties of 12s. per ton on Australian pig iron, puddled bar iron, and steel, and of 10 per cent. on the value of galvanised sheet or plate, wire netting, wire, and iron or steel pipes and tubes. During the period from 30th June, 1909, to 30th June, 1915, a sum of £173,671 was paid in connexion with these bounties. (For details see Official Year Book No. 11, p. 452.)

(ii) *The Iron Bounty Act 1914–15.* This Act repealed the Manufactures Encouragement Act 1908–14, and provided for a bounty on Australian pig iron up to the end of 1916. The rate of bounty was 8s. per ton, and the total amount authorised £60,000. Provision was made for transfer, if required, to the State, of lands, buildings, etc., used

in the manufacture of pig iron. During the three years 1915 to 1917 the respective bounties amounted to £19,808, £24,465, and £11,454, and the corresponding tonnages of pig iron to 49,520, 61,162, and 28,635 tons. New South Wales is the only State where bounty has been claimed.

2. **Production of Iron.**—(i) *New South Wales.* Reference to the extent of the deposits of iron ore in the State, and the events leading up to the establishment of iron-works at Lithgow, will be found in earlier issues of the Year Book (see No. 3., p. 508). During 1919 the following materials were received at the blast furnace at the Eskbank Iron Works, Lithgow:—Iron ore, 141,926 tons; limestone, 60,004 tons; and coke, 119,895 tons. The iron ore was raised from quarries at Tallawang, Breadalbane, Cadia, and Carcoar, and the output was 80,941 tons of pig iron.

The following table shews the quantity and value of pig iron, produced in New South Wales during the last seven years from locally-raised ores only:—

NEW SOUTH WALES.—PRODUCTION OF IRON (LOCAL ORE), 1913 TO 1919.

Particulars.	1913.	1914.	1915.	1916.	1917.	1918.	1919.
Quantity .. Tons	46,563	75,150	76,318	52,556	45,025	68,072	80,941
Value .. £	186,252	254,267	267,000	197,085	247,637	350,000	445,175

The figures quoted above refer to production from *local* ores only, and as such credited to the New South Wales mineral industry. They do not, of course, represent the total production of pig iron in New South Wales, since, as shewn in the succeeding paragraph, a considerable quantity of ore raised in South Australia and credited therefore to the mineral returns of that State is treated in New South Wales.

The Broken Hill Proprietary Company established works for the manufacture of iron and steel on a large scale at Newcastle, and operations were started early in 1915. The Company is utilising the immense deposit of iron ore at the Iron Knob quarries in South Australia, which are connected with the seaboard at Whyalla, a distance of about 36 miles, by the Company's tramway. The ore quarried for the year ending December, 1920, amounted to 413,150 tons. Extensive limestone works and loading bin at Devonport, Tasmania, as well as quarries in New South Wales for dolomite, magnesite, etc., are also owned by the Company. The steel works consist of two blast furnaces of a nominal daily producing capacity of 350 tons each, and a third furnace of 100 tons for the production of foundry iron. Another furnace with a capacity of 350 tons is in course of erection, and should be in operation during the latter part of 1921. The output of pig iron for the year from the two blast furnaces and small foundry furnace, which is now used extensively for the production of ferro-manganese, amounted to 251,416 tons. The seven 65-ton open-hearth steel furnaces already in operation are being extended by the addition of two others of equal capacity. With seven furnaces, the present output is over 3,400 tons weekly. The actual output of steel ingots during 1920 was 219,973 tons. The works are supplied with a 28-in. bloom and rail-rolling mill, able to deal with 500 tons of finished rails daily. There are also in operation an 18-in., 12-in., and 8-in. mill for merchant steel, as well as a rod mill for production of rods for wire drawing capable of an output of 350 to 400 tons of rods per week down to size No. 5 (.212 of an inch). The output from the mills during the twelve months ending 1920 was as follows:—

Rails	54,170 tons
Billets	8,723 ,,
Fishplates and Splice Bars ..	4,711 ,,
Structural Steel	19,502 ,,
Round and Octagon Steel ..	19,070 ,,
Flat Steel..	16,826 ,,
Plates	2,092 ,,
Square Steel	1,065 ,,
Rods	49,814 ,,
Total	175,973 tons

The Company is producing its own coke for the furnaces, having already 161 by-products ovens in operation and 63 in course of construction. The tar and sulphate of ammonia produced during 1920 amounted to 2,710,472 gallons and 3,589 tons respectively.

A quantity of iron oxide is purchased by the various gasworks for use in purifying gas, the output in New South Wales being drawn chiefly from the deposits at Port Macquarie, while smaller quantities are obtained in the Moss Vale and Goulburn Divisions. During 1919 the iron oxide raised amounted to 2,724 tons, valued at £3,406. Up to the end of 1912 a certain amount of ironstone was raised each year for fluxing purposes, but as the smelting companies obtained suitable ores for treatment there was no subsequent production till 1916, when 1,472 tons, valued at £1,083, were raised. In 1919 the quantity raised was 2,128 tons, valued at £2,072.

(ii) *Victoria.* Iron ore has been located at various places in Victoria, particularly at Nowa Nowa, in the Gippsland district, and at Dookie. A blast furnace was erected in 1881 near Lal Lal, on the Moorabool River, and some very fair quality iron was produced, which was used for truck wheels and stamper shoes at the Ballarat mines. The fall in the price of the metal, however, led to the closing of the works. In his report for 1905 the Secretary for Mines states that without special assistance to the industry there does not seem to be any prospect of the deposits being profitably worked.

(iii) *Queensland.* Queensland possesses some extensive deposits of iron ore, which are mined chiefly for fluxing purposes in connexion with the reduction of gold and copper ores. During the year 1919, 24,676 tons of ironstone flux, valued at £27,684, were raised, of which 23,200 tons, valued at £26,669, came from the Rockhampton district, and about 1,300 tons, valued at £900, from the Cloncurry field. In 1917 satisfactory tests were made in connexion with the smelting of ore from the extensive lode of magnetic iron at Biggenden, and the Government Geologist has recommended the establishment of a State ironworks to make pig iron from this ore.

(iv) *South Australia.* South Australia possesses some rich deposits of iron ore capable of being mined for an indefinite period. The best known deposit is the Iron Knob, a veritable hill of iron ore of high percentage, situated about 40 miles W.S.W. from Port Augusta. The estimated quantity of iron ore in sight at the Iron Knob and Iron Monarch has been set down at 21,000,000 tons. The Broken Hill Company utilises ore from this quarry at its ironworks at Newcastle, New South Wales, and the amount raised for the year 1919 was 268,530 tons, valued at £307,402.

(v) *Western Australia.* This State has some very rich deposits of iron ore, but owing to their geographical position, the most extensive fields at the present time are practically unexploited, the production in the State being confined chiefly to that needed for fluxing purposes. The Murchison field possesses some extensive deposits of high-grade ore. There are also deposits on Koolan Island at Yampi Sound. The production of pyritic ore reported in 1919 amounted to 4,136 tons, valued at £4,919.

(vi) *Tasmania.* The amount of ore available in the principal iron-ore deposits in Tasmania has been estimated as follows:—

	Tons.
Blythe River Lode	17,000,000
Dial Range and Penguin	700,000
Beaconsfield and Anderson's Creek	1,300,000
Long Plain	20,000,000
Zeehan District	2,900,000
Nelson River	Unknown
Total	41,900,000

The total production of iron ore in 1908 was 3,600 tons, valued at £1,600, all raised by the Tasmanian iron mine at Penguin, but owing to the closing down of that mine in 1909 there has been no further production. Iron pyrites for the manufacture of sulphuric acid and of manures is produced on the West Coast, the quantity raised in 1919 being 3,457 tons, valued at £4,288.

(vii) *Northern Territory.* Large bodies of rich ironstone have been discovered in various parts of the Territory, particularly between the Adelaide River and Rum Jungle. Owing to the lack of local coal, however, the deposits possess no immediate value.

(viii) *World's Production of Iron, 1917.* The quantity of iron produced in Australia is but a very small proportion of the world's production, which in 1917, the latest year for which complete estimates are available, amounted to 72,382,000 metric tons (pig iron). The leading position for magnitude of production is held by the United States, which in 1917 produced 39,240,000 tons, compared with Germany's 13,142,000 tons, and the United Kingdom's 9,572,000 tons. The position of the three countries named is similar to what it has been for several years past. The world's production of steel for 1917 is given as 84,894,000 metric tons.

§ 9. Other Metallic Minerals.

1. **Antimony.**—This metal is widely distributed in the north-eastern portion of New South Wales, between the 148th meridian and the coast, and has been found native at Lucknow, near Orange. Dyscrasite, a silver antimonide, has been found in massive blocks in the Broken Hill lodes. The production of antimony (metal) in 1919 amounted to 87 tons, valued at £2,342. The ore is raised mainly in the Hillgrove division, where it is found in association with scheelite and gold, and the production in 1919 amounted to 161 tons, valued at £2,317. A portion of this was smelted on the field. A small quantity of stibnite, valued at £25, was produced at Burropine in the Kempsey division. Owing to the low price of the metal in 1919 there was no work done on the large deposits in the Drake division. The total quantity of antimony (metal and ore) raised in New South Wales up to the end of 1919 was 18,707 tons, valued at £341,183. The production of antimony concentrates in Victoria during 1919 amounted to 1,208 tons, valued at £24,160. The whole of the production came from ore raised by a company operating at Costerfield. In Queensland extensive deposits are found at Neerdie, in the Wide Bay district, at Wolfram Camp, on the Hodgkinson field, on the Palmer River, in the Ravenswood district, and at various places in the Herberton district. Ore has also been obtained in the Dividing Range near Herberton, and adjacent to some of the central tributaries of Emu Creek. Owing to the low price of the metal in 1919 production was practically negligible. In Western Australia lodes of stibnite carrying gold have been found in the Roeburne district. During 1917, 12 tons of antimony, valued at £258, were exported, but there was no production in 1918 and 1919.

2. **Arsenic.**—In New South Wales, deposits of arsenical ore have been located at various places, but production in 1919 was small, amounting to 6 tons, valued at £24, raised at Burrowa. Prospecting was in progress on a rich deposit at Brungle, and deposits were tested at Tyagong in the Young division, and at Rockdale near Armidale. During 1917 the high price ruling for arsenic, and the urgency of the need for supplies in connection with the destruction of prickly pear, led to the reservation by the Queensland Mines Department of an extensive area of arsenic-bearing deposits at Jibbinbar, in the Stanthorpe district. Operations have been commenced, and it is hoped to produce the article at pre-war prices. At the Beecroft mine at Sundown, in the Stanthorpe district, 23 tons were produced in 1919, while the State mine at Jibbinbar during the portion of the year when it was in operation returned an output of 33 tons. In South Australia attention is being devoted to arsenic-bearing minerals at Woodside, at Westward Ho, near Mannahill, and on Kangaroo Island. During 1918 Western Australia exported 697 tons of arsenical ore, valued at £2,564, but there was no production in 1919. In the form of arsenopyrite, arsenic is of wide distribution in Victoria, but the deposits are worked to a limited extent only. At Ballarat a small quantity of the oxide is obtained from the flues of roasting furnaces.

3. **Bismuth.**—This metal has been found in New South Wales, near Glen Innes, in the Deepwater division, and also at Whipstick, in the Pambula division, its discovery dating from 1877. The production at Kingsgate, in the former division, where bismuth occurs in association with molybdenite, was valued in 1919 at £3,914, while that at Whipstick was valued at £1,263. Deposits of bismuth ores are also found in the Oberon, Deepwater, Tenterfield, Young, and Gundaroo divisions. About 19 tons of metal and ore, valued at £20,215, were exported from New South Wales during 1919; the total quantity exported to the end of that year was 684 tons, valued at £189,042. In Queensland wolfram and bismuth have been found in various districts, but the chief

centres of production in 1919 were the Herberton and Chillagoe fields. The total production for the year was valued at £59,932, of which 229 tons, valued at £40,596, was returned as wolfram, 20 tons, valued at £655, as bismuth, and 140 tons, valued at £18,681, as bismuth and wolfram. In South Australia, deposits are found at Balhannah, at Mount Macdonald, and at Murninnie, on the shores of Spencer's Gulf. A small quantity of bismuth was exported from Western Australia in 1919. In Tasmania 2 tons, valued at £573, were raised in 1919, principally from the Shepherd and Murphy mine at Middlesex.

4. **Chromium.**—In New South Wales chromium is found at Bowling Alley Point, on the Peel River, at Barraba, at Manilla, at Gordon Brook, in the Clarence River district, at Bingara, Wallendbeen, and near Gundagai. The production during recent years has been small, the quantity raised in 1919 being 250 tons, valued at £616, of which 150 tons, valued at £340, were obtained in the Bingara division, and smaller quantities were raised at Cullinga and Braulin in the Cootamundra division. Chrome iron ore is found in Queensland in the Rockhampton district, but there was no production recorded in 1919.

5. **Cobalt.**—This metal was found at Carcoar in New South Wales in 1889, and subsequently at Bungonia, Port Macquarie, and various other places. There was no export of cobalt since 1911, and the total produced since 1860 amounted in value to only a little over £10,000. Deposits have been noted in Queensland at Selwyn in the Cloncurry area; in South Australia near Bimbourie and South Blinman; in Western Australia at Norseman and Kanowna; and at various places in Victoria.

6. **Lead.**—This metal was first noted in New South Wales in 1849, when small specimens of native metal were found by the Rev. W. B. Clarke. At present lead mining *per se* is not practised to any extent in the Commonwealth, the supply of the metal being chiefly obtained in conjunction with silver. In New South Wales, lead in the form of pig, carbonate, and chloride, exported in 1919, amounted to 11,497 tons, valued at £324,215. The total lead exported to the end of 1919 was 298,000 tons, valued at £5,775,000. As stated previously, the metallic contents of the major portion of the silver lead ores are extracted outside New South Wales, and these figures refer only to lead values assigned as the produce of the State. In Victoria, oxides, sulphides, and carbonates of lead are found in the reefs of most of the goldfields. The deposits are not, however, of sufficient extent to repay the cost of working. In Queensland the deposits are worked chiefly for the silver, copper or gold contents of the ore, the lead produced in 1919 amounting to 135 tons, valued at £4,739. At one time South Australia produced a fair amount of lead, £22,303 worth being raised in 1902, but the production rapidly decreased, and no output has been recorded since 1910. During 1919 pig lead exports from Western Australia amounted to 1,780 tons, valued at £48,462. Tasmanian lead production in 1919 was returned as 2,357 tons, valued at £64,403, of which the Zeehan mines contributed 808 tons, the Mt. Farrell mines, 447 tons, Magnet, 529 tons, and Mt. Claude mines, 365 tons.

7. **Manganese.**—Ores of this metal occur in widely separated districts in New South Wales, but the low price of the metal in past years precluded mining to any great extent, and the production to date has been small. During 1919, 4,651 tons, valued at £13,953, were raised chiefly in the Grenfell division. Small quantities were also raised in the Parkes, Rockley, Bathurst, Tamworth, Uralla, Bingara, Cootamundra, Fifield, and Cooma divisions. Manganiferous deposits were recorded in the Armidale and Molong divisions. In Queensland there are extensive deposits at Mount Miller, near Gladstone, in the country to the west and south-west of Gympie, and in the Stanthorpe district. Owing to lack of a market, production in 1919 was limited to 20 tons, valued at £103. Small quantities of manganese ore were raised in Victoria during 1916 from mines in the vicinity of Heathcote. Extensive deposits of the ore were mined at Boolcunda in South Australia some years ago. Deposits are being actively worked at the present time at Pernatty, Hawker, and Gordon. The production in 1919 was valued at £1,490. In Western Australia ores of the metal are found widely scattered, the black oxide being especially plentiful in the Kimberley district.

8. **Mercury.**—In New South Wales mercury was first recorded by the Rev. W. B. Clarke in 1841. Cinnabar has been found in lodes and impregnations at various places, such as Bingara, Clarence River, etc. Up to the present the production of quicksilver

has been small, the total being only about 3,000 lbs. During 1916 the Pulganbar Company raised 200 tons of ore from their mine at Ewengar in the Drake division. The mercury produced was valued at £180. There was no production recorded in the years 1917 to 1919. In Victoria native mercury and cinnabar have been found at Silver Creek, a tributary of the Jamieson River. Lodes of cinnabar have been found in Queensland at Kilkivan, and at Black Snake, in the Wide Bay district; about four tons were produced between 1874 and 1891. Between O.K. and Mungana several shows have been prospected with encouraging results. Small quantities have been found disseminated over a large area near Willunga in South Australia, and the metal is also found in New Guinea.

9. **Molybdenum.**—In New South Wales molybdenite (associated with bismuth) is obtained at Kingsgate, near Glen Innes, at Deepwater, at Rocky River in the Tenterfield division, in the Bathurst division, and at Whipstick in the Pambula division, the production in 1919 being 66 tons, valued at £30,308, as compared with 93 tons, valued at £41,850 in the previous year. In Victoria 78 tons of molybdenite, valued at £2,531, were raised in 1919 at Everton. The production in Queensland for 1919 was 118 tons, valued at £52,234, of which 73 tons, valued at £33,088, were produced by the Chillagoe field, and 43 tons, valued at £18,540, from the Mount Perry area. A small quantity was produced in 1914 from the mines in the Moonta district in South Australia, and the occurrence of the metal is reported from various other localities. At the Yelta mine bunches of the ore are scattered through the copper ore, and the molybdenite is picked out during the dressing of the copper ore. The yields for the last three years were, however, trifling. Molybdenite occurs in small quantities at various localities in Western Australia, the production in 1919 being valued at £100. In the Northern Territory, molybdenite is found at Yenberrie, where it is stated that the ore increases in richness as the workings become deeper. Production in 1919 was, however, very small.

10. **Radium.**—(i) *General.* It is reported that there have been several definite discoveries in Australia of the occurrence of minerals containing radium. A discovery of carnotite, which is an alteration product of pitchblende, the compound from which radium is obtained, was made in 1906, 20 miles E.S.E. of the Olary railway station, in South Australia. In 1910 pitchblende was identified in portion of the workings at Olary, and a specimen exhibiting a high degree of radio-activity was obtained. This is the first authentic discovery of the mineral pitchblende in Australia. The deposits of radio-active uranium ores found at Radium Hill were mined some years ago, and the concentrates forwarded to Sydney for treatment at the company's works at Woolwich. As noted in (ii) below, operations are at present at a standstill. Monazite from Pilbara, Western Australia, has been shewn to give off radium emanations. The mineral has been called "pilbarite." Lastly, it is stated that the ores obtained at the Moonta mines, South Australia, contain from one-tenth to one-fifteenth of the amount of radium found in high-grade pitchblende, and that a product having a fairly high degree of radio-activity can be extracted therefrom with comparative ease. During 1918 radio-active ore to the value of £686 was raised in South Australia, but there was no production recorded in 1919.

(ii) *Production of Radium Bromide.* At the end of November, 1912, a small quantity of radium bromide was produced at the Radium Hill Co.'s works at Woolwich, Sydney, this being the first occasion on which a marketable amount of this salt has been obtained outside of Europe. It was estimated by the chemist in charge that the plant at the works was capable of providing £600 worth of radium weekly. From the 30th June, 1913, to the end of May, 1914, the works produced 239 milligrams of high-grade radium preparation. The industry, however, has since remained inactive.

11. **Tungsten.**—Wolfram and scheelite, the principal ores of tungsten, are both mined to some extent in New South Wales. During 1919 the production of wolfram was 135 tons, valued at £22,818, and of scheelite 80 tons, valued at £15,193. Wolfram was mined chiefly in the Torrington division of the New England District, and scheelite in the Hillgrove area. In Victoria the production of wolfram was returned in 1919 as $2\frac{1}{4}$ tons, valued at £400, the bulk of the production coming from Thologolong, Marysville, and Barrakee. In Queensland, tungsten ores are found in several districts, the chief centres of production in 1919 being Chillagoe and Herberton. (See also "Bismuth.") A deposit of wolfram was discovered near Yankalilla, in South Australia, as far back as 1893, but the production up to date has been small. It is believed that careful examination will lead to increased production from the deposits at Callawonga Creek. In the Northern Territory wolfram

to the value of £34,805 was obtained in 1918–19, chiefly from Hatches Creek Wauchope Creek and Yenberrie. Numerous samples of good wolfram ore have been obtained at the Frew River in Central Australia.

In Western Australia, in addition to a small quantity of wolfram, 8 tons of scheelite, valued at £772, were exported in 1919. Wolfram is mined at various points in Tasmania, the production for 1919 being 121 tons, valued at £26,613, obtained chiefly at the Avoca mines, and from the Shepherd and Murphy mine at Middlesex. Scheelite has been discovered on King Island in Bass Strait, and as a result of operations 199 tons of concentrates of an estimated* value of £43,181 were produced in 1919.

12. **Tantalum.**—Tantalite in small quantities has been found in the Greenbushes mineral field of Western Australia for some time past, but recently a lode of fairly extensive proportions was located at the Wodgina tinfield. Up to the end of 1905 the production of this mineral in Western Australia amounted to 73 tons, valued at about £10,000, but early in 1906 it was found that the supply exceeded the demand, and production was temporarily stopped; in 1908 a small quantity valued at £400 was exported. About £327 worth was reported as having been raised in the Greenbushes and Pilbara fields during 1909, but none was exported owing to the entire absence of any market. No further production was recorded until 1916, when 47 tons, valued at £9,375, were exported, consisting of ore which had been raised some years previously at Wodgina, in the Pilbara field. The export in 1917 amounted to 17 tons, valued at £2,513, but there was no record of production in 1918, while the export in 1919 was valued at £75. Small quantities of the mineral are also found in the Northern Territory.

13. **Uranium.**—This mineral has been discovered in South Australia in the country between Mount Painter and Mount Pitts, about 80 miles east from Farina. The uranium ores occur most frequently in the form of torbernite and autunite, and are found over a considerable area. The discovery is therefore of considerable importance, since ores of this mineral are found to a very limited extent in other parts of the world, and radium is regarded as one of the products of disintegration of uranium.

In addition to the metals enumerated above there is a large number of others occurring in greater or less degree, while fresh discoveries are being constantly reported.

(B) NON-METALLIC MINERALS.

§ 10. Coal.

1. **Production in each State.**—(i) *Historical.* A historical account of the discovery of coal in each State will be found in preceding issues of the Year Book. (See No. 3, pp. 515–6.)

(ii) *New South Wales.* The production in 1919 amounted to 8,631,554 tons, valued at £5,422,846, or a decrease of about 432,000 tons in quantity, but an increase of £481,000 in value, as compared with the output in 1918. From the collieries in the Northern district the output in 1919 was 5,629,703 tons; the Southern district supplied 1,826,574 tons; and the Western 1,175,727 tons. The quantities raised in each district in 1918 were 5,966,926, 1,984,578, and 1,111,672 tons respectively. The reduced output in the Northern and Southern districts was partly accounted for by lack of shipping facilities, through strikes, and partly by stoppages at several collieries due to industrial disputes. The increased yield in the Western district was mainly due to the fact that supplies of coal were sent by rail from Lithgow to Victoria during the period when sea carriage had ceased.

(iii) *Victoria.* During 1919 the production amounted to 423,945 tons of black coal, valued at £372,075, and 111,628 tons of brown coal, valued at £34,542. Of the total output, 361,872 tons, valued at £307,591, were raised by the State coal mine at Wonthaggi, and 110,183 tons, valued at £34,253, from the State brown coal mine at Morwell. The total production for 1919 was about 30,000 tons in excess of that in the preceding year.

(iv) *Queensland.* The quantity of coal raised in 1919 was 931,631 tons, valued at £614,307, this production being about 52,000 tons less than in the preceding year. The decrease was due to the lessened production in the Ipswich district. Twenty-six collieries were working in the Ipswich district, six on the Darling Downs, five in the Maryborough district, four in Rockhampton district, five at Clermont, one at Bowen, and one at Mount

Mulligan in the Chillagoe district. The industry is at present in a very satisfactory position in the northern State, and owing to the wide area over which the deposits stretch, practically no limit can be set to its possibilities of extension.

(v) *Western Australia.* Six collieries were in operation on the Collie field during 1919, and the output for the year was 401,713 tons, the largest on record, and about 65,000 tons more than in 1918.

(vi) *Tasmania.* The principal collieries in Tasmania are the Cornwall and Mount Nicholas, the former producing 31,000 and the latter 28,000 tons out of a total yield in 1919 of 66,000 tons.

The quantity and value of coal produced in each State and in the Commonwealth at various periods since 1881 are shewn in the following table :—

PRODUCTION OF COAL, AUSTRALIA, 1881 TO 1919.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
			QUANTITY.				
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1881	1,769,597	3	65,612	..	..	11,163	1,846,375
1891	4,037,929	29,156	271,603	..	..	43,256	4,381,944
1901	5,968,426	209,479	539,472	..	117,836	45,438	6,880,651
1915	9,449,008	590,968	1,024,273	..	226,666	64,536	11,415,451
1916	8,127,161	420,098	907,727	..	301,526	55,575	9,812,087
1917	8,292,867	505,364	1,048,473	..	326,550	63,412	10,236,666
1918	9,063,176	505,775	983,193	..	337,039	60,163	10,949,346
1919	8,631,554	535,573	931,631	..	401,713	66,253	10,566,724
			VALUE.				
	£	£	£	£	£	£	£
1881	603,248	3	29,033	..	..	5,581	637,865
1891	1,742,796	21,404	128,198	..	..	21,628	1,914,026
1901	2,178,929	147,228	189,877	..	68,561	18,175	2,602,770
1915	3,424,630	275,343	409,342	..	137,859	30,418	4,277,592
1916	3,336,419	216,875	389,348	..	147,823	27,736	4,118,201
1917	4,422,740	345,830	597,360	..	191,822	38,673	5,596,425
1918	4,941,807	367,640	572,305	..	204,319	37,676	6,123,747
1919	5,422,846	406,617	614,307	..	270,355	47,004	6,761,129

The Victorian figures for 1919 include about 112,000 tons of brown coal, valued at £35,000, of which over 110,000 tons were produced at the State mine at Morwell.

2. Distribution and Quantity of Coal in each State.—(i) *New South Wales.* Estimates have from time to time been made as to the total quantity of coal available for working in the deposits in New South Wales, and while these naturally differ to some extent, they agree in placing the amount at well over a thousand million tons, without taking into consideration the deposits existing below a depth of 4,000 feet. According to Mr. E. F. Pittman, the coal-bearing rocks of New South Wales may be classified as follows :—

COAL-BEARING ROCKS OF NEW SOUTH WALES.

Geological Age.	Maximum Thickness of Coal-bearing Strata.	Locality.	Character of Coal.
	Approx.		
I. Tertiary—Eocene to Pliocene ..	100 ft.	Kiandra, Gulgong, and Chouta Bay	Brown coal or lignite
II. Mesozoic—Triassic or Trias-Jura	2,500 ,,	Clarence and Richmond Rivers	Coal suitable for local use only
III. Palæozoic—Permo-Carboniferous	13,000 ,,	Northern, Southern, and Western Coalfields	Good coal, suitable for gas, household and steaming
IV. Palæozoic—Carboniferous ..	10,000 ,,	Stroud, Bullah Delah	Very inferior coal, with bands; of no value

In regard to the Tertiary deposits, it may be noted that no serious attempt has been made to use the coal as fuel in New South Wales. At Kiandra a deposit of lignite was found to possess a maximum thickness of 30 feet, but as a general rule the seams vary from 3 to 4 feet in thickness. The Triassic or Trias-Jura deposits in the Clarence and Richmond districts contain numerous seams, but the coal is largely intersected by bands, while its large percentage of ash renders it unfit for use as fuel for industrial purposes. These beds extend under the great western plains, but the presence of artesian water precludes the possibility of their being worked. The Clarence basin extends into Queensland, and at Ipswich thick and valuable seams of coal are worked. It is in the Permo-Carboniferous division that the great productive coal seams of the State are found, the area which they cover being estimated at about 16,550 square miles. The deepest part *of the basin is somewhere in the vicinity of Sydney, where the* "Sydney Harbour Colliery" worked the top seam at a depth of 2,884 feet. Towards the north, south and west the seams rise towards the *surface, and outcrop in the neighbourhood* of Newcastle, Bulli and Lithgow. The coal from the various districts embraced in this division differs considerably in quality—that from the Newcastle district being especially suitable for gas-making and household purposes, while the product of the Southern (Illawarra) and Western (Lithgow) is an excellent steaming coal. At the present time the Greta coal seams are being extensively worked between West Maitland and Cessnock, and this stretch of country, covering a distance of 15 miles, is now the most important coal mining district in Australasia. The Permo-Carboniferous measures have in various places been disturbed by intrusions of volcanic rocks, which in some instances have completely cindered the seams in close proximity to the intrusive masses, while in other instances the coal has been turned into a natural *coke, some of which has realised good prices as fuel.*

The table hereunder gives the yields from the various divisions at intervals from 1881 to 1919:—

COAL RAISED IN NEW SOUTH WALES, 1881 TO 1919.

District.	1881.		1901.		1911.		1919.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£	Tons.	£
Northern ..	1,352,472	437,270	3,999,252	1,669,519	5,793,646	2,320,673	5,629,253	3,795,244
Southern ..	253,283	115,505	1,544,454	407,196	2,066,621	636,163	1,826,574	1,078,003
Western ..	163,842	50,473	424,720	102,214	831,337	210,329	1,175,727	549,599
Total ..	1,769,597	603,248	5,968,426	2,178,929	8,691,604	3,167,165	8,631,554	5,422,846

Sydney Harbour Colliery. This colliery possesses considerable interest from the circumstance that its workings are amongst the deepest in the world. Extended reference to the history of its opening will be found in preceding Year Books. (See No. 6, p. 504.)

(ii) Victoria. The deposits of black coal in Victoria occur in the Jurassic system, the workable seams, of a thickness ranging from two feet three inches to six feet, being all in the Southern Gippsland district. Deposits of brown coal and lignite of immense extent occur in gravels, sands, and clays of the Cainozoic period throughout Gippsland, Mornington Peninsula, Werribee Plains, Gellibrand, and Barwon and Moorabool basins. In the Latrobe Valley, the beds reach a thickness of over 800 feet. When dried, the material makes good fuel, but owing to its excessive combustibility and friability requires to be consumed in specially constructed grates. Its steaming value is equal to about half that of the Wonthaggi coal. Some large factories already have adopted brown coal for firing boilers, and there is also a fair demand for the product by householders. In 1917 an Advisory Committee appointed to report on the brown coal deposits of Victoria recommended the establishment of an open-cut mine at Morwell in connexion with a comprehensive scheme for electrical power generation and transmission, as well as for the supply of brown coal for other requirements. The recommendations of this Committee were incorporated in the "Electricity Commissioners Act" of 1918.

The output of coal from the chief Victorian collieries during the last ten years was as follows :—

PRODUCTION OF COAL IN VICTORIA, 1910 TO 1919.

Year.	State Coal Mine.	Outtrim Howitt Company.	Jumbunna Coal Company.	Coal Creek.	Austral Coal.	Other.	Total Production.	Value.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	£
1910 ..	201,053	46,832	61,954	10,968	36,052	13,050	369,909	189,254
1911 ..	500,059	28,359	57,397	4,589	34,607	28,987	659,998	301,141
1912 ..	455,659	24,326	53,306	4,829	31,506	23,529	593,155	259,321
1913 ..	486,238	22,460	38,795	6,218	33,462	9,723	596,896	274,940
1914 ..	550,107	16,597	24,236	5,887	20,034	3,390	620,251	289,099
1915 ..	528,922	7,500[c]	28,160	6,338	16,229	3,819	590,968	275,343
1916 ..	354,146	..	31,792	5,688	10,885	17,587	420,098	216,875
1917 ..	405,498	..	22,236	1,058	13,888	61,784	505,364	345,830
1918 ..	389,794	..	16,533	2,378	15,419	81,651	505,775	367,640
1919 ..	361,871	..	21,716	1,465	11,824	138,697	535,573	406,617

Included in the total for "other" is an amount of 22,335 tons raised by the Powlett North Woolamai, and 4,734 tons raised by the Sunbeam Colliery. The figures also include 110,183 tons of brown coal raised by the State mine at Morwell, and 1,445 tons raised by the Altona Beach Estates.

(iii) *South Australia.* The coal from Leigh's Creek in South Australia is subject to similar disabilities to those of the Victorian brown coal, and until some means are devised of overcoming them, production will probably languish. The deposit is situated about 370 miles by rail from Adelaide, and 160 from Port Augusta, the total extent of coal-bearing country being set down as 42 square miles. The main seam has a thickness of over 45 feet. As the result of experiments made it would appear probable that profitable use might be made of the coal in a pulverized form.

(iv) *Queensland.* In Queensland the coal-bearing strata are of vast extent and wide distribution, being noted under the greater portion of the south-eastern districts, within 200 miles of the sea, as far north as Cooktown, and under portions of the far western interior. The Ipswich beds are estimated to occupy about 12,000 square miles of country, while the Burrum fields occupy a considerably larger area. At Callide, fifty miles west of Gladstone, a seam of coal free from bands has been struck in a shaft only 60 feet deep, and borings have proved the deposit to be of considerable magnitude. The beds in the Cook district are estimated to comprise rather more than 1,000 square miles, but coal measures extend to the south-west far beyond Laura and to the north of the railway. Extensive beds occur in the basin of the Fitzroy River, in the Broadsound district, and at the Bowen River. Amongst other places where the mineral is found may be enumerated Clermont, the Palmer River, Tambo, Winton, Mount Mulligan, and the Flinders River. Boring operations have proved the existence of seams of workable coal for some distance on both sides of the Dawson River. A bituminous coal is yielded by the Ipswich seams, those of the Darling Downs yield a cannel, while anthracite of good quality is furnished by the Dawson River beds.

The quantity and value of coal raised in Queensland at various periods since 1861 were as shewn below :—

PRODUCTION OF COAL IN QUEENSLAND, 1861 TO 1919.

Year	1861.	1871.	1881.	1891.	1901.	1919.
Quantity .. Tons	14,212	17,000	65,612	271,603	539,472	931,631
Value .. .. £	9,922	9,407	29,033	128,198	189,877	614,307

The distribution of production during the last three years was as follows :—

QUEENSLAND COLLIERIES, 1917, 1918, AND 1919.

Districts.	1917.	1918.	1919.
	Tons Raised.	Tons Raised.	Tons Raised.
Ipswich	728,605	678,931	620,608
Darling Downs	97,797	94,242	97,454
Wide Bay and Maryborough	72,282	62,948	63,665
Rockhampton (central)	6,410	7,955	8,350
Clermont	132,664	122,812	121,250
Bowen (State Coal Mine)	..	..	306
Mount Mulligan (Chillagoe)	10,715	16,305	19,998
Total	1,048,473	983,193	931,631

Operations were commenced at the State Coal Mine on the Bowen field in March, 1919. The coal is of good quality and is well suited for coking. With the completion of the railway to the field, it is anticipated that supplies of coke will be forwarded to the smelters at Chillagoe, Irvinebank and Cloncurry, the coke for which has hitherto been brought from Newcastle.

(v) *Western Australia.* The coal seams in Western Australia belong to the Carboniferous, Mesozoic, and Post-tertiary ages. Most of the coal contains a large proportion of moisture, and belongs partly to the hydrous bituminous and partly to the lignite class. The only coalfield at present worked is at Collie, in the Permo-Carboniferous beds. The coal produced is bright and clean, but very fragile when free from moisture. About 271,000 tons of the total production in 1919 was taken by the railways and tramways, the balance being sold for bunkering and local trade. The production from this field since 1901 was as follows :—

PRODUCTION OF COAL IN WESTERN AUSTRALIA, 1901 TO 1919.

Year ..	1901.	1911.	1914.	1915.	1916.	1917.	1918.	1919.
Quantity Tons	117,836	249,899	319,210	286,666	301,526	326,550	337,039	401,713
Value £	68,561	111,154	148,684	137,859	147,623	191,822	204,319	270,355

In 1918 a discovery of coal was made near Wilga on the Donnybrook–Katanning railway.

(vi) *Tasmania.* In Tasmania, coal occurs in the following geological periods :—(1) Permo-Carboniferous : Lower Coal Measures. (2) Mesozoic : Upper Coal Measures. (3) Tertiary : Brown Coal and Lignite deposits. Permo-Carboniferous coal is found at Avoca, Mt. Nicholas and Fingal, Thomson's Marshes, Langloh, Seymour, York Plains, Mike Howe's Marsh, Longford, Colebrook, Schouten Island, Spring Bay and Prosser's Plains, Compton and Old Beach, Lawrenny, Longhole, Sandfly, Ida Bay, Hastings and Southport, Recherché and South Coast, Tasman's Peninsula. Deposits of lignite and brown coal are plentiful in beds of Tertiary age, but they have not been exploited to any extent. An estimate gives the approximate quantity of coal available as sixty-five

million tons, of which eleven millions are in the Lower Coal Measures and fifty-four millions in the Upper Measures, exclusive of an unknown quantity in strata fringing the Central Tiers.

PRODUCTION OF COAL IN TASMANIA, 1901 TO 1919.

District.	1901.	1911.	1914.	1915.	1916.	1917.	1918.	1919.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
North-western ..	2,952	1,496	1,074	270	673	350	1,353	2,836
North-eastern ..	37,239	54,290	58,743	63,507	54,284	61,910	56,461	59,509
Midland	1,536	635	847	691	598	399	1,161	2,899
South-eastern ..	..	} 640	130	68	20	753	1,188	1,009
South-western ..	3,711							
Total ..	45,438	57,037	60,794	64,536	55,575	63,412	60,163	66,253

The bulk of the output in 1919 was raised from the Cornwall and Mt. Nicholas mines in the North-eastern Division, which produced 31,456 and 28,053 tons respectively.

3. **Production of Coal in Various Countries.**—The total known coal production of the world in 1919 amounted to about 1,100 million tons towards which the Commonwealth contributed 10½ million tons, or about 1 per cent. The following table shews the production of the British Empire and the chief foreign countries in units of 1,000 tons in 1901 and during each of the years from 1912 to 1919 where the returns are available :—

COAL PRODUCTION, BRITISH EMPIRE, 1901 AND 1912 TO 1919.

Year.	United Kingdom.	British India.	Canada.	Australian C'wealth.	New Zealand.	Union of S. Africa.
	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.
1901	219,047	6,636	5,791	6,881	1,228	712
1912	260,416	14,706	15,237	11,730	2,178	7,248
1913	287,430	14,708	13,404	12,418	1,888	7,858
1914	265,665	16,446	12,176	12,445	2,276	7,570
1915	253,206	17,104	11,846	11,415	2,209	7,394
1916	256,375	17,254	12,931	9,812	2,257	8,935
1917	248,499	17,326	12,543	10,237	2,068	9,270
1918	227,749	19,847	13,377	10,949	2,034	8 819
1919	209,860	..	12,130	10,567	1,849	9,166

COAL PRODUCTION, FOREIGN COUNTRIES, 1901 AND 1911 TO 1919.

Year.	Russia.	Sweden.	Germany.	Belgium.	France.	Spain.	Japan.	United States.
	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons
1901 ..	16,215	268	106,795	21,856	31,126	2,609	8,895	240,789
1912 ..	30,796	354	174,261	22,972	40,487	3,790	19,640	477,202
1913 ..	33,299	358	188,447	22,474	39,410	3,952	21,377	508,893
1914 ..	32,620	361	158,950	16,445	26,412	4,067	22,385	458,504
1915 ..	27,847	405	144,365	18,949	18,554	4,289	20,570	474,660
1916 ..	47,073	408	158,305	16,592	20,213	5,033	23,082	526,873
1917 ..	..	436	164,634	14,692	27,318	5,281	26,671	561,609
1918 ..	..	398	157,940	13,605	24,542	6,408	28,487	605,546
1919 ..	..	..	..	18,191	21,222	..	30,339	485,949

The United States returns include a large proportion of anthracite, the quantity averaging for the last five years about 82 million tons.

Including New Zealand the production from Australasia takes second place amongst the possessions of the British Empire, British India coming first in order.

4. **Export of Coal.**—The exports of coal from the Commonwealth are practically confined to New South Wales.

The total quantity of coal of Australian production (exclusive of bunker coal) exported from the Commonwealth to other countries in 1919 was 778,645 tons, valued at £615,621, of which amount 778,035 tons, valued at £614,981, were exported from New South Wales. Owing to disturbed conditions consequent on the war the figures are, of course, considerably below those of normal years.

In the following table will be found the quantity and value of the exports from New South Wales, at decennial intervals since 1881 and during the last five years. The figures are given on the authority of the Mines Department of that State, and include both bunker coal and coal exported from New South Wales to other States of the Commonwealth :—

EXPORTS OF NEW SOUTH WALES COAL, 1881 TO 1919.

Year	1881.	1891.	1901.	1911.	1915.	1916.	1917.	1918.	1919.
Quantity, 1,000 tons	1,030	2,514	3,471	5,024	4,668	3,434	3,264	3,422	3,503
Value, £1,000	417	1,307	1,682	2,664	2,485	1,873	2,384	2,525	2,919

The principal oversea countries to which coal was exported from New South Wales during the year 1919-20 are as shewn hereunder. The quantity and value refer strictly to exports, and exclude bunker coal :—

DESTINATION OF NEW SOUTH WALES OVERSEA EXPORTS OF COAL, 1919-20.

Country.	Quantity.	Value.	Country.	Quantity.	Value.
	Tons.	£		Tons.	£
Alaska	3,015	2,609	Java	83,727	73,303
Canada	5,017	3,763	Papua	4,879	4,309
Chile	31,314	26,773	New Caledonia	28,719	26,118
Straits Settlements	113,233	97,746	Gilbert and Ellice Islands	4,932	3,943
Fiji	40,088	33,929	Solomon Islands	1,290	1,320
New Zealand	506,552	392,705	Pleasant Island	5,454	4,615
India	14,480	12,270	Ceylon	2,543	2,988
Tonga	54,364	46,497	Japan	3,813	3,473
Peru	17,322	14,938	Guam	5,586	4,283
Philippine Islands	63,988	56,743			
United States	21,826	16,840			

The quantity of bunker coal taken from New South Wales by oversea vessels was about 455,000 tons.

The distribution of the total output from New South Wales collieries during the last five years was as follows, the particulars given of quantity exported including coal shipped as bunker coal :—

DISTRIBUTION OF TOTAL OUTPUT OF NEW SOUTH WALES COAL, 1915 TO 1919.

Year.	Exports to Australasian Ports.	Exports to other Ports.	Local Consumption.	Total.
	Tons.	Tons.	Tons.	Tons.
1915	2,601,070	2,067,324	4,780,614	9,449,008
1916	2,203,659	1,230,439	4,693,063	8,127,161
1917	2,225,228	1,038,569	5,029,070	8,292,867
1918	2,697,033	724,643	5,641,500	9,063,176
1919	1,891,317	1,611,701	5,128,526	8,631,554

The figures quoted above are given on the authority of the New South Wales Mines Department. *Owing to the abolition of the record of interstate trade it is impossible to give the quantities forwarded to each of the States of the Commonwealth.*

5. Consumption of Coal in Australia.—An estimate of the consumption of coal in the Commonwealth may be arrived at by adding the imports to the home production, and deducting the exports (including bunker coal taken by oversea vessels). The following table shews the consumption of coal in Australia, computed in the manner specified, for the *last five years* :—

CONSUMPTION OF COAL IN AUSTRALIA, 1915 TO 1919.

Year.	Quantity of Coal Consumed.		
	Home Produce.	Produce of Other Countries.	Total.
	Tons.	Tons.	Tons.
1915	9,250,592	6,580	9,257,172
1916	8,266,215	11,068	8,277,283
1917	8,985,599	65,512	9,051,111
1918	9,866,323	23,777	9,890,100
1919	9,036,623	64,673	9,101,296

The bunker coal taken away in 1919 is estimated at 751,000 tons.

6. Price of Coal.—(i) *New South Wales.* The price of coal in New South Wales has been subject to considerable fluctuation since the date of first production. Up to the end of 1857 the average value of the total output was 11s. 10d. per ton. Next year the value had risen to nearly 15s., declining thereafter until in 1871 the price realised was 7s. From 1872 to 1879 there was a rise in value to 12s. Between 1882 and 1891 the price ranged between 8s. and 10s. From 1891 onwards there was a steady decline until 1898, when the average was 5s. 4d. Henceforward prices rose again until 1902, when 7s. 5d. was the average. A decline then set in until 1905, when the price stood at a little over 6s., followed by a rise of one penny in 1906, and a further rise of eightpence in 1907. In 1908 the average was 7s. 4d., in 1916, 8s. 2d., while in 1917 the price advanced to 10s. 8d. per ton, the highest recorded since 1879. In 1918 there was a further rise to 10s. 11d., and in 1919 to 12s. 7d. The price of New South Wales coal depends on the district from which it is obtained, the northern (Newcastle) coal always realising a much higher rate than the southern or western product. The average rate in each district during the last five years was as follows :—

PRICE OF COAL, NEW SOUTH WALES, 1915 TO 1919.

Year.	Northern District.	Southern District.	Western District.
	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.
1915	7 7.24	6 11.23	5 6.08
1916	9 0.72	7 1.77	5 6.90
1917	11 5.14	9 11.89	7 11.92
1918	11 8.03	9 10.32	8 8.04
1919	13 5.81	11 9.64	9 4.19

(ii) *Victoria.* In Victoria the average price of coal up to the 31st December, 1890, was 19s. 3d. per ton. In 1895 the price was still as high as 12s. 2d., but in the following five years there was a serious decline, the value in 1900 being quoted at 9s. 7d. per ton. In 1901, however, there was an astonishing rise, the figure being as high as 14s. 7d. Since that year, however, the price again declined up to 1916, the average for 1905 being 10s. 2d. ; for 1909, 12s. ; for 1912, 8s. 9d. ; for 1913, 9s. 3d. ; for 1914 and 1915, 9s. 4d.; and for 1916, 10s. 4d. In 1917, however, the price rose to 14s. 5d., in 1918 to 15s. 11d., and in 1919 to 17s. 7d. per ton. These averages are exclusive of brown coal, the production of which in 1919 was valued at 6s. 2d. per ton.

(iii) *Queensland.* Prices in the principal coal-producing districts during the last five years were as follows :—

PRICE OF COAL, QUEENSLAND, 1915 TO 1919.

District.	Value at Pit's Mouth.				
	1915.	1916.	1917.	1918.	1919.
	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.
Ipswich	7 3	7 11	10 8	11 0	12 7
Darling Downs	8 11	9 10	12 9	13 5	14 10
Wide Bay and Maryborough	11 10	12 2	15 10	16 9	19 2
Rockhampton	8 6	9 6	11 10	12 4	13 4
Clermont	7 8	7 9	11 5	10 5	11 2
Bowen	..	..	..	..	15 0
Mount Mulligan (Chillagoe)	12 7	13 4	15 6	16 6	17 8
Average for State ..	8 0	8 7	11 5	11 8	13 2

The readjustment of prices and wages in the industry was responsible for the high averages during the last three years.

(iv) *Western Australia.* The average price of the Collie (Western Australia) coal up to the end of 1901 was 9s. 4d. per ton, the price in 1901 being 11s. 7d. In 1902 the average stood at 12s. 3d., and from that time the price fell steadily until 1906, when it was 7s. 7½d. per ton. In 1907, the average price was 7s. 8¾d. ; in 1908, 8s. 7½d. ; in 1909, 8s. 5¾d. ; in 1910, 8s. 8d. ; in 1911, 8s. 10d. ; in 1912, 9s. 2d. ; in 1913, 9s. 9d. ; in 1914, 9s. 4d. ; in 1915, 9s. 8d. ; in 1916, 9s. 9d. ; in 1917, 11s. 9d. ; in 1918, 12s. 1d. ; and in 1919, 13s. 5d. per ton.

(v) *Tasmania.* The average price per ton of coal at the pit's mouth in Tasmania was 8s. in 1901. In 1902 it was 8s. 7d. ; in 1903, 8s. 9d. ; in 1904 and 1905, 9s. 8d. ; in 1906, 9s. 9d. ; in 1907, 1908, and 1909, 8s. ; in 1910, 11s. 9d. ; in 1911 and 1912, 9s. 2d. ; in 1913, 9s. 3d. ; in 1914, 9s. 2d. ; in 1915, 9s. 5d. ; in 1916, 9s. 9d. ; in 1917, 12s. 2d. ; in 1918, 12s. 6d. ; and in 1919, 14s. 2d. per ton.

7. Price of Coal in the United Kingdom.—*During the five years 1914–18 the* average value of coal at the pit's mouth in the United Kingdom has risen rapidly, the price in 1914 being 10s. ; in 1915, 12s. 6d. ; in 1916, 15s. 7d. ; in 1917, 16s. 9d. ; and in 1918, 20s. 11d. per ton.

8. Employment and Accidents in Coal Mining.—The number of persons employed in coal mining in each of the States during the year 1919 is shewn below. The table also shews the number of persons killed and injured, with the proportion per 1,000 employed, while further columns are added shewing the quantity of coal raised for each person killed and injured, this being a factor which must be reckoned with in any consideration of the degree of risk attending mining operations.

Returns published by the Board of Trade, England, some years ago, gave the total known number of persons engaged in coal mining in the principal countries of the world as 3½ millions, the number in the United Kingdom being 1,068,000 ; the United States, 723,000 ; Germany, 628,000 ; France, 199,000 ; Russia, 169,000 ; Belgium, 146,000 ; Austria, 75,000 ; India, 133,000 ; and Japan, 145,000.

The latest available returns shew the rate in the United Kingdom in respect of deaths through accidents in coal mines as 1.40, and for the British Empire 1.48 per 1,000 persons employed in coal mines. For France the rate is given as 1.17, for Germany 2.30, and the United States 3.35. For foreign countries generally the rate is stated at 2.48 per 1,000.

EMPLOYMENT AND ACCIDENTS IN COAL MINING, 1919.

State.	Persons Employed in Coal Mining.	No. of Persons.		Proportion per 1,000 Employed.		Tons of Coal Raised for each Person.	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New South Wales	18,178	17	100	0.94	5.50	508,000	86,000
Victoria	2,192	5	13	2.28	5.93	107,000	41,000
Queensland ..	2,259	9	28	3.98	12.39	104,000	33,000
Western Australia	726	1	118	1.38	162.53	402,000	3,000
Tasmania ..	209	..	9	..	43.06	..	7,000
Commonwealth ..	23,564	32	268	1.36	11.37	330,000	39,000

The figures for New South Wales include a small number of shale miners.

§ 11. Coke.

1. **Production of Coke.**—Notwithstanding the large deposits of excellent coal in Australia, there was, prior to the war, a fairly considerable amount of coke imported from abroad. In 1918–19, however, the import was negligible. The table hereunder gives the production in New South Wales during the last five years :—

COKE MADE IN NEW SOUTH WALES, 1915 TO 1919.

Year		1915.	1916.	1917.	1918.	1919.
Quantity ..	.. tons	417,753	437,587	455,587	608,492	424,773
Value, total	.. £	313,241	387,571	541,093	647,798	550,127
Value per ton	..	15s. 0d.	17s. 9d.	23s. 9d.	21s. 4d.	25s. 11d.

During the last five years the industry has made considerable progress. It provides a profitable means of disposal for the small coal which until recent years was allowed to go to waste.

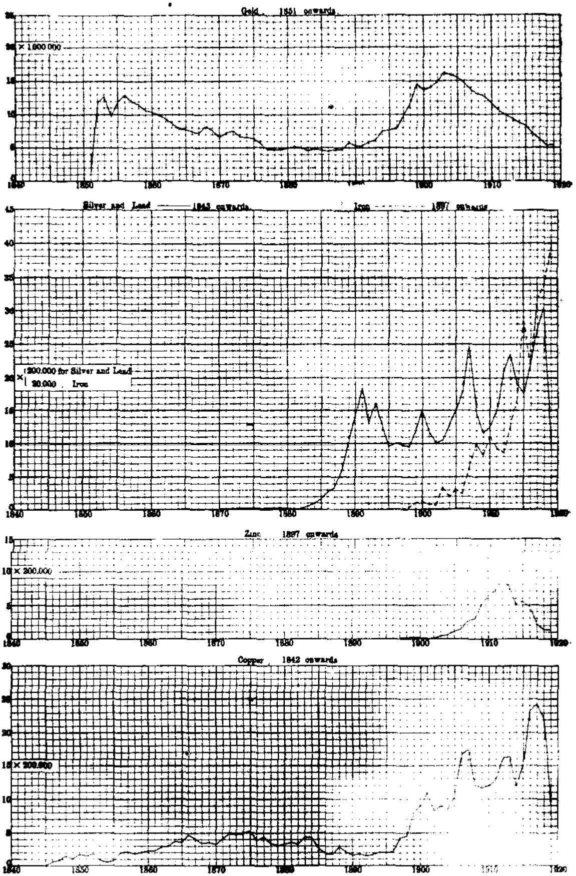
A small quantity of coke is made in Queensland, the quantity returned in 1919 being 4,562 tons, but the bulk of that used in ore reduction is imported, mainly from New South Wales. The following table shews the amount manufactured locally during the last five years :—

QUEENSLAND.—COKE MANUFACTURED, 1915 TO 1919.

Year		1915.	1916.	1917.	1918.	1919.
Manufactured locally	tons	17,085	17,904	13,399	14,437	4,562

It is estimated that the total amount of coke consumed for smelting purposes in Queensland during 1918 was 74,000 tons, of which 14,000 tons were produced locally, and 60,000 tons were imported from New South Wales. Records of importation during 1919 are not available.

GRAPHS SHEWING VALUES OF THE PRINCIPAL MINERALS PRODUCED IN THE COMMONWEALTH, 1840 TO 1919.

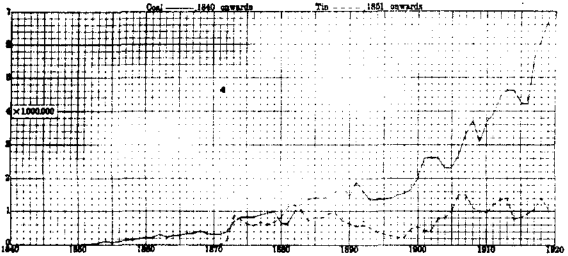


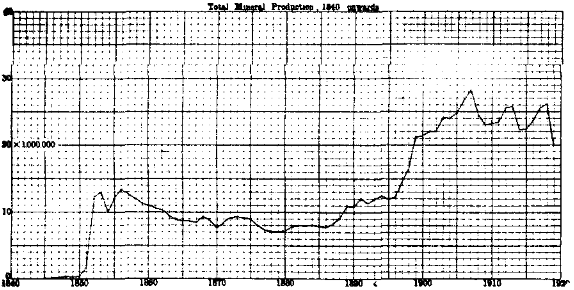
(See pages—for gold, 340; silver, 348; iron, 358; zinc, 357; copper, 351.)

EXPLANATION OF GRAPHS.—The values shewn in the above diagrams are those of the total Commonwealth production of certain of the most important minerals in successive years from 1840 to 1919.

The base of each small square represents an interval of one year, and the vertical height represents in the case of gold £1,000,000, in the case of silver and lead, zinc, and copper £200,000, and in the case of iron £20,000.

GRAPHS SHEWING VALUES OF THE PRINCIPAL MINERALS PRODUCED IN THE COMMONWEALTH, 1840 TO 1919—*continued.*





(See pages 364 for coal ; 354 for tin ; and 339 for total mineral production.)

EXPLANATION OF GRAPHS.—The values shewn in the above diagrams are those of the total Commonwealth production of certain of the most important minerals in successive years from 1840 to 1919.

The base of each small square represents an interval of one year, and the vertical height represents in the case of coal and tin £200,000, and in the case of total mineral production £1,000,000.

§ 12. Oil Shale and Mineral Oils.

1. Production of Shale.—(i) *New South Wales.* As pointed out by Mr. E. F. Pittman, the name kerosene shale has been rather inaptly applied to a variety of torbanite, cannel, or boghead mineral found at various geological horizons in New South Wales. The mineral does not, as a rule, split in parallel layers, the fracture being rather of a conchoidal type. Pure samples have been found to contain over 89 per cent. of volatile hydro-carbons. The discovery of the mineral in New South Wales dates probably as early as 1802. Its occurrence in the Hartley Vale district was noted by Count Strzelecki in 1845. The mineral has been found at several places in the Upper Coal Measures, and in at least two in the Lower Carboniferous. Production on anything like a large scale commenced in 1868, when about 17,000 tons, valued at £48,000, were raised. The production in 1919 amounted to 25,453 tons, valued at £37,968, as compared with 32,395 tons, valued at £39,076, in 1918. For 1919 the whole of the production came from the Western District.

(ii) *Victoria.* Up to the present no extensive deposit of oil shale has been located in Victoria.

(iii) *Queensland.* The discovery of natural gas and traces of oil in a deep bore at Roma has fostered the hope that energetic development will lead to the discovery of mineral oil in quantity in this locality. During 1919 the bore reached a depth of 3,705 feet, but at the latest available date further drilling operations were suspended owing to the tools getting fast in the bore. Oil-bearing shales are common in many parts of the State. The deposit at Duaringa on the Central railway line shewed a thickness of 6 feet, and contained about 30 gallons of oil to the ton. Inflammable gas and a little oil have been noted in bores put down for coal on the Dawson River. There are shale deposits at Munduran Creek, near Gladstone, Casuarina Island, Redbank Plains in the Ipswich District and Murphy's Creek, near Toowoomba. It is stated that the borings have not so far penetrated to a sufficient depth to properly test the strata.

(iv) *South Australia.* Bitumen is occasionally washed up on the Southern coasts of the continent from Port Davey in Tasmania to Cape Leeuwin in Western Australia. Specimens found on Kangaroo Island at one time led to the belief that they were the product of a terrestrial petroliferous area. Expert opinion now, however, inclines to the idea that the material is sea-borne, but the source of origin is unknown. Similar occurrences of this mineral have been reported from the coasts of California, South Africa, and New Zealand. A bore has been put down to a depth of over 4,000 feet, with negative results, by the South Australian Oil Wells Co. A large number of licenses to search for oil was taken out some years ago and bores were put down near Kingston and near Robe.

(v) *Western Australia.* A deposit of carbonaceous shale of considerable thickness is known to exist at Coolgardie, but the mineral has not yet been raised in any quantity. It is stated that small seepages of oil have been noted near Wonnerup, and indications have been reported from the neighbourhood of Albany and Esperance.

(vi) *Tasmania.* Tasmanite shale has been discovered in the basins of the Mersey, Don, and Minnow Rivers, and the Government Geologist estimates the probable capacity of the beds at 12,000,000 tons. The crude oil content of average quality shale has been estimated at 40 gallons to the ton. In July, 1912, the Railton-Latrobe Shale Oil Company acquired the leases and plant of the Tasmanian Shale and Oil Company, at Latrobe, and it was proposed to develop the deposits on a large scale. The production in 1914 was, however, small, amounting to 75 tons, valued at £75, while no returns from this source were included in the production records for 1915. In 1916, the Company raised 1,286 tons of shale, valued at £1,286, and in 1919, 600 tons valued at £900. Large pieces of asphaltum have been discovered in places along the sea coast and in several of the bays of Port Davey Harbour, but it is believed that the material originates in submarine beds. A bore was put down in 1916 by a private company on Bruni Island in search of petroleum, but after sinking about 429 feet, operations ceased for lack of funds.

In 1917 a deposit of tasmanite shale was located on the Cam River.

(vii) *Northern Territory.* The existence of oil shale has been reported in the Boroloola district, and several oil licenses were applied for some years ago in the Victoria River district. Results were, however, negative, and experts have pronounced unfavourably on the prospects.

(viii) *Papua.* Many indications suggest that oil-bearing strata exist over an extensive area in the Gulf Division of Papua. Seepages of oil and natural gas are known, and, in addition, light oil of excellent quality has been obtained from sandy strata encountered in most of the prospecting bores put down under the direction of the Commonwealth Government. Reconnaissance surveys have been made of the country where evidences are known to exist, while selected areas are being surveyed in greater detail. Several test bores have been sunk, the deepest being over 1,800 feet; in each case quantities of inflammable oil and gas have been met with, but so far not in sufficient bulk for commercial purposes. (See also Section XXIX., Papua.)

2. **Export of Shale.**—In 1916–17 New South Wales exported a small quantity of shale. There was no export in the succeeding year, and in 1919, 5 tons were exported valued at £21.

3. **Shale Oil Bounties.**—The Shale Oils Bounties Act 1910 provided for the payment of bounties on certain goods manufactured in Australia from Australian shale on or after the 1st July, 1910, and before the 1st July, 1913. The total amount made available for bounties under this Act was £50,000. During the year 1913, the bounties paid in New South Wales amounted to £985 on 118,000 gallons of kerosene, and £809 on 324 tons of refined paraffin wax. Under the Shale Oil Bounty Act of 1917 a sum of £270,000 was provided for bounty on crude shale oil at various rates. Bounty to the amount of £26,407 was paid on 2,816,718 gals. of crude shale oil in 1918–19.

On the 2nd January, 1920, the Commonwealth Government offered a reward of £10,000 for the discovery of petroleum oil in Australia, subject to the fulfilment of certain conditions. Under the Native Industries Encouragement Act of 1872, the Government of South Australia offered a bonus of £5,000 on the production within the State of 100,000 gals. of crude petroleum containing not less than 90 per cent. of products obtainable by distillation.

§ 13. Other Non-Metallic Minerals.

1. **Alunite.**—Probably the most remarkable deposit of alunite in the world occurs at Bullahdelah, in the county of Gloucester, New South Wales, a large proportion of a low bluff ridge in the district being composed of this mineral. The deposits are worked by quarrying, and from 1890 up to the end of 1919, 54,000 tons had been exported, valued at £191,000, the exports for the year 1919 being 2,485 tons, valued at £14,910.

Deposits of a high-class alunite are reported to have been discovered near Sunbury, in Victoria.

According to the Geologist's report, apart from its scientific interest, no commercial importance attaches to the presence of natural alum over the area examined near Boonmoo, on the Chillagoe Railway in Queensland.

In South Australia an extensive deposit of the mineral was located in 1913 at Carrickalinga Head, on the coast north of Normanville, and within a short distance of Adelaide. Fresh discoveries were recently reported on the western shores of St. Vincent's Gulf. It is stated that the specimens so far analyzed have proved richer in valuable constituents than any similar find yet recorded. The mineral returns for 1917 shew a small production, but none was recorded in 1918 and only 60 tons in 1919.

2. **Asbestos.**—This substance has been found in various parts of Australia, but up to the present has not been produced in any considerable quantity. In New South Wales 1,527 tons of fibrous rock, which on treatment yielded 123 tons of fibre valued at £1,500, were raised by a company from deposits in the Barraba division. A small quantity was also raised in 1919 at Lewis Ponds in the Orange division. In Queensland seams of asbestos have been found over a belt of country extending from Cawarral to Canoona, as well as in other districts. Samples of the fibre proved suitable for the manufacture of fibro-cement, sheeting, and tiles, but so far the deposits have not been commercially exploited. In Western Australia a deposit of the fibrous chrysolite variety was located at Soanesville, on the Pilbara goldfield, and £154 worth of this mineral was raised in 1919. The discovery of a deposit of commercial quality was reported from

the Nullagine district in 1917; about 50 tons, valued at £1,400, were produced in 1919. In 1899 Tasmania raised 200 tons, valued at £363, but there was no further production until 1916, when a small quantity was raised at Anderson's Creek, near Beaconsfield. In 1917, 271 tons, valued at £271; in 1918, 2,854 tons, valued at £5,008, and, in 1919, 51 tons, valued at £1,275, were produced. Deposits of asbestos of the mountain leather and mountain cork varieties have been discovered at Oodlawirra, while deposits of a good blue variety have been discovered near Hawker and about 23 miles from Eudunda, in South Australia.

3. **Barytes.**—In New South Wales during 1919 about 579 tons of barytes, valued at 1,851, were obtained, of which 400 tons were raised at Mandurama in the Cowra division, and 179 tons at Lue in the Mudgee division, while small quantities were raised in the Cooma and Braidwood divisions. The production in South Australia during 1919 was given as £5,264. In this State there are extensive deposits of the mineral in the Willunga and other districts. About 399 tons of barytes were produced in Tasmania in 1919.

4. **Clays and Pigments.**—Valuable deposits of clays and pigments of various sorts are found throughout the Commonwealth. There is a considerable local production of earthenware, bricks, and tiles, but the finer clays have not as yet been extensively used. In New South Wales the production of kaolin in 1919 amounted to 2,254 tons valued at £3,243, of which 500 tons, valued at £1,000, were raised at Morongla Creek in the Cowra division, and 373 tons, valued at £485 were raised in the Murrumburrah division. Production was also recorded from the Parkes, Gulgong, Gunning, Goulburn, Mudgee, and Sydney divisions. Deposits of steatite were worked during 1919 in the Murrumburrah division, the quantity raised during the year at Wallendbeen amounting to 200 tons, while 150 tons were produced in the parish of Wallendoon, County Harden. Near Morangaroo 5,000 tons of silica were raised by the Silica Fire Brick Company. Extensive deposits have been located in the parishes of Conyola and Ulladulla in the Milton division. About 200 tons of ochre, valued at £300, were raised in the Dubbo division; 165 tons of red ochre were raised near Glen Innes, and 60 tons of red oxide of iron at Granville, near Sydney. In Victoria 950 tons of kaolin were obtained at Egerton, 240 tons at Stawell, 700 tons at Pyalong, and 101 tons at Carngham, the total value of the production being given at £2,255. A small quantity of pigments was raised from leases in the Balnarring and Knowsley areas. In Queensland, 8,368 tons of fireclay, valued at £2,051, were mined during the year 1919, the whole of which was obtained in the Mount Morgan district. On Kangaroo Island, South Australia, where, it is stated, the first pottery mill in the Commonwealth was erected, there are vast deposits of felspar, china-stone, silica, and firebrick clay. There are also very extensive deposits of fireclay near Ardrossan on the Yorke Peninsula. Ochre deposits suitable for making coloured tiles are found near Port Noarlunga. Porcelain and other clays of good quality have been found in Tasmania at Beaconsfield, Sorell, Hagley, etc. Deposits of ochre have been opened up at Dubbo, Wellington, and Marulan, in New South Wales, and ochres and pigments of excellent quality have been produced therefrom. Extensive deposits of iron oxide, giving a return of 80 per cent. ochre, have been discovered near Oodlawirra in South Australia. Oil and water paints of good quality have been made from coloured ochres from Sorell, in Tasmania, and a deposit of ochre of good quality has been located near Mowbray. A company is making paints from the latter deposits, and also from deposits on leases near Ilfracombe. At Kingston a valuable clay deposit has been opened up.

5. **Coorongite.**—This peculiar india-rubber like material was first noted many years ago near Salt Creek and in the vicinity of Coorong Inlet, in South Australia, as well as at various localities on Kangaroo Island. It was thought that the substance owed its origin to subterranean oil-bearing strata, but so far the search for petroleum has not been attended with success. (See also § 12, 1 (iv.)) While the origin of coorongite is still in doubt, it is held by some observers that it originates from the blue-green algæ which frequently abound in swamps and shallow inland waters. Similar material has been found in Portuguese East Africa, and on the shores of lakes in Siberia.

6. **Fuller's Earth.**—Small quantities of this material were produced in 1917, from leases in the Narrabri division, New South Wales.

7. **Graphite.**—Graphite is found in New South Wales near Undercliff Station, in the county of Buller, and 100 tons raised during 1919 realised £100 per ton.

Owing to the low grade of the ore there is only a limited market for it. In Victoria the mineral occurs in Ordovician slates in several of the goldfields, but is not worked. In Queensland graphite was raised some years ago by the Graphite Plumbago Company at Mt. Bopple, near Netherby, on the Maryborough-Gympie line. In South Australia deposits are found at various places in Eyre's Peninsula. While a large proportion of the product is not suitable for commercial use, the work so far done shews that flake graphite containing as high as 80 per cent. carbon can be obtained. The Government is offering a bonus of £1 per ton for the production of a marketable graphite. In Western Australia deposits occur at Munglinup Creek, near the Oldfield River, at Northampton, in the Murchison division, and on the Donnelly River, at Kendenup, about 40 miles from Albany. At the last-mentioned locality, where the ore is of good grade, a fair amount of developmental work has been done, but the export in 1918 was small, amounting to 5 tons, valued at £75, and none of the mineral was exported in 1919.

8. **Gypsum.**—This mineral is found in various places in the Commonwealth. It occurs in two forms, large crystals, and a floury earth consisting of minute crystals and known as "copi." Both forms are exceedingly pure. It is used largely as a natural manure and to some extent in the manufacture of Portland cement. Gypsum, or hydrous sulphate of lime, when burnt, forms plaster of Paris. In Victoria during 1919 there was a production of 820 tons, valued at £482, obtained chiefly at Lake Boga. Numerous deposits of gypsum are found in Southern Yorke's Peninsula in South Australia. The production in 1919 was valued at £18,725. A factory for the manufacture of plaster of Paris has been erected by the Permasite Co. on its lease at Dry Bone Lake. A deposit of gypsum sand containing practically an inexhaustible supply is found on the edge of Lake Austin in Western Australia.

9. **Magnesite.**—Deposits of this mineral have been discovered at several localities in New South Wales. During 1919, 3,435 tons, valued at £5,093, were raised in the Fifield division, and 5,829 tons, valued at £2,939, at Attunga, in the Tamworth division. The mineral is found at Heathcote in Victoria, where 77 tons, valued at £231, were produced in 1919. There are deposits in the neighbourhood of Rockhampton and Bowen in Queensland, and a deposit of exceptional purity has been located in the vicinity of Tumby Bay in South Australia, about five miles from the township of Tumby. The cost of transport is a drawback to the production from the Copley (Leigh Creek) district. The Broken Hill Co. is working a small deposit near the Beetaloo Waterworks. Production in 1919 amounted to 273 tons, valued at £508. During 1915, 688 tons of magnesite, valued at £1,196, were exported from Western Australia, but the export in 1916 amounted to 12 tons only, in 1917 to 42 tons, in 1918 to 62 tons, while none was exported in 1919. A large area of magnesite bearing country has been located at Bulong, about 20 miles east of Kalgoorlie.

10. **Tripolite, or Diatomaceous Earth.**—Although tripolite has been found at Barraba, Cooma, Wyrallah, and in the Warrumbungle Mountains in New South Wales, the deposits have not been worked commercially on any considerable scale. From the deposits at Middle Flat, in the Cooma division, 88 tons of diatomaceous earth, valued at £246, were produced in 1919, and small quantities were obtained in the Coonabarabran and Narrabri divisions. In Victoria there is a remarkably pure deposit at Lillicur, near Talbot, while beds of the mineral are also met with at other places in the Loddon Valley, near Ballarat, at various places close to Melbourne, at Craigieburn, Lancefield, Portland, Swan Hill, Bacchus Marsh, etc. During 1919, a production of 140 tons, valued at £560, was recorded. Fairly extensive deposits of diatomite exist in Queensland, in the Nerang, Beaudesert and Canungar areas, but the various outcrops have as yet been only partially examined. In Tasmania a deposit of diatomaceous earth has been located at Oatlands, but its use for the manufacture of explosives is apparently prejudiced by the circumstance that the diatoms are pulverised and contaminated with clay.

11. **Salt.**—Salt is obtained from salt lakes in the Western and North-western Districts of Victoria, and from salterns in the neighbourhood of Geelong. Figures regarding production are, however, not available for publication. Large quantities are also obtained from the shallow salt lakes of South Australia, chiefly on Yorke Peninsula. Lake Hart, about 60 square miles in area, situated about 120 miles N.W. from Port Augusta, contains immense supplies of salt of good quality, which at present, however, owing to distance from market, possess no economic value. The salt is simply scraped from the beds of the lakes in summer time and carted to the refinery.

it is stated that care must be taken not to leave too thin a crust of salt over the underlying mud, as the resultant "crop" after the winter rains will in that case be smaller than usual. A bore put down near Kingscote, on Kangaroo Island, revealed brine from which salt can be profitably obtained by evaporation. About 69,000 tons of crude salt were produced during 1919. In Western Australia supplies are obtained from dried-up shallow lakes and consumed locally or exported. The chief centres of production were formerly Rottnest Island, near Fremantle, Middle Island, near Esperance, and Port Gregory; but during recent years the bulk of the demand has been supplied from imports.

Attention has recently been devoted to the occurrence of salt in Queensland, more especially to the deposits in the vicinity of the Mulligan River in Western.

12. **Natural Manures.**—Gypsum has already been referred to (see 8 *ante*). South Australia possesses deposits of rock phosphate near Port Clinton and Ardrossan on Yorke Peninsula, at Belvedere near Kapunda, and at Kooringa, and also at many other places which have only been prospected to a small extent. The production in 1919 was 5,950 tons, valued at £8,982. Phosphate of lime has been found in small quantities chiefly in the limestone caves of New South Wales. The production in 1919 amounted to 576 tons of phosphate rock, valued at £2,016, raised by the Canowindra Phosphate Co. in the Cowra division. In Victoria, about 2,500 tons of phosphate rock were raised in 1919 at Mansfield. Although it can hardly be considered a mineral product, mention may be made here of the large accumulations of guano on the Abrolhos Islands, off the coast of Western Australia, in the neighbourhood of Geraldton. The deposits vary in thickness from four to twenty-seven inches. During the years 1876–80 over 36,000 tons were raised; no figures are available shewing the quantity raised in recent years.

§ 14. Gems and Gemstones.

1. **Diamonds.**—Diamonds were first noted in New South Wales by E. J. Hargraves in 1851, and in October of the same year by Geological Surveyor Stutchbury. The Cudgegong field was discovered in 1867, and shortly afterwards the Bingara diamantiferous deposits were located. Stones of small size are also found at Cope's Creek and other places in the Inverell district. The largest diamond won in New South Wales was reported to have been obtained in 1905 at Mt. Werong, near Oberon, and weighed 28$\frac{3}{16}$ carats. It is difficult to secure accurate returns in connexion with the production of precious stones, but the yield of diamonds in 1919 was estimated at 1,774 carats, valued at £1,706, while the total production to the end of 1919 is given at 195,413 carats, valued at £133,987. The yield in 1919 was contributed by miners working in the vicinity of Copeton, in the Tingha division. Small quantities of diamonds are found in Victoria in the gravels of streams running through granite country in the Beechworth district, at Kongbool in the Western District, and near Benalla. The stones are generally small and the production up to date has been trifling. In 1912, eleven small diamonds, valued at £20, were picked out of the sluice boxes of the Great Southern alluvial mine at Rutherglen. A few small diamonds have been found in the Pilbara district in Western Australia. In South Australia diamonds have been found on the Echunga goldfield, the most notable gem being Glover's diamond, which was sold for £70. A few small diamonds have, from time to time, been found in Tasmania, chiefly while sluicing for gold in the Donaldson district.

2. **Sapphires.**—These gems were discovered in New South Wales in 1851, near Burrandong. They have also been found in small quantities near Inverell, and at a few other localities in the State. During 1919, 1,150 carats of sapphires were obtained at Swamp Oak in the Inverell division. Specimens of sapphire have been found in Victoria, but the stones of commercial size are generally of little value owing to flaws.

In Queensland sapphires are found in the gravel of creek beds, between Withersfield and Anakie on the Rockhampton-Winton railway line. The gems shew excellent fire and lustre, but the colour is darker blue than the Oriental sapphire. Hyacinths are occasionally found in association with the gems. The production of sapphires in Queensland in 1919 was valued at £42,883 as compared with £600 in 1915, and over £40,000 in 1913. The gem mining industry practically collapsed on the outbreak of the war, as the German buyers ceased business. With the opening up of markets in London and Paris,

however, matters assumed a more satisfactory footing and business remained fairly satisfactory in 1918. During 1919, owing to the keen demand for the gems, prices rose rapidly. It is stated that the increased demand was partly due to the circumstance that many persons in Europe were converting their assets into gems, in view of the international value possessed by the latter, and was partly brought about by development of the gem-cutting industry in France and England. The output of sapphires in 1919 was valued at £42,883, as compared with £16,591 in 1918.

Sapphires are plentifully found in the tin drifts of the Ringarooma and Portland districts in Tasmania, but the stones are, as a rule, small and not worth saving.

3. **Precious Opal.**—This stone was first discovered in New South Wales at Rocky Bridge Creek on the Abercrombie River, in the year 1877, and later a most important discovery was made at White Cliffs in the Wilcannia district, which, for a time, contributed the bulk of the production. In 1919, however, out of a total production valued at £27,552, the yield from the Lightning Ridge field, near Walgett, amounted to £25,000, while the output from the White Cliffs field was £1,900. A new field was opened up in 1919 in the Ballina division, and about £600 worth of opal was raised therefrom. Some very fine stones are at times obtained, one weighing 5 ozs. and valued at £300 being recovered in 1911. Occasionally, black opals of very fine quality are found, one specimen from the Wallangulla field, weighing 6¼ carats, being sold in 1910 for £102. It is stated that this locality is the only place in the world where the "black" variety of the gem has been found. The total value of opal won in New South Wales since the year 1890 is estimated at £1,475,000.

Small quantities of precious opal are also found in the Beechworth district in Victoria.

In Queensland, the first recorded discovery of the gem dates from about 1875. The opaliferous district stretches over a considerable area of the western interior of the State, from Kynuna and Opalton as far down as Cunnamulla. The yield in 1919 was estimated at £600, and up to the end of that year at about £179,000. These figures are, however, merely approximations, as large quantities of opal are disposed of privately to buyers on the fields, no record of which is obtained. At present, the industry suffers from the peculiar disability that in good seasons there is plenty of work available on the pastoral stations, and most men prefer this to the uncertain results obtainable by fossicking, while in dry seasons when constant work is not obtainable, the search for opal is limited by the difficulty in obtaining sufficient water.

Precious opal has been discovered in South Australia in a locality 144 miles N. by E. of Tarcoola. The specimens show similar characteristics to those obtained at White Cliffs in New South Wales. Production in 1919 amounted to about £20,000.

4. **Other Gems.**—Emeralds were found in New South Wales in the year 1890, near the township of Emmaville, the largest specimen found in the district weighing 23 carats in the rough. Altogether 2,225 carats were sent to London during that year, some of the gems bringing £4 a carat, but the production has since dwindled. The mine at the Glen in the Emmaville division was re-opened and worked for a short period during 1908, when about 1,000 carats of emeralds, valued at about £1,650, were obtained. The largest stone in the rough weighed 60 carats. Small emeralds of fine quality have been found at Poona, in Western Australia, and it is stated that prospecting at greater depths would possibly reveal the existence of larger specimens. Amongst other gems found in New South Wales at various times may be mentioned *turquoises*, discovered in 1894, near Bodalla; *topazes*, fine specimens of which have been obtained in the New England district; and *zircons* and *garnets*. Zircons of small size are plentifully found in the vicinity of Table Cape in Tasmania. Topazes are common in the tin drifts of Tasmania, and some fine specimens have been found. Turquoises are also found in thin veins in Victoria. In Gascoigne's mine, situated near the King River, in the parish of Edi, samples of the gem have been found equal in colour to the best Persian stone, and a considerable quantity of turquoises from this mine has been sold in England and Germany. Fine *agates* are found in many places in Victoria, but have not been made use of to any extent. These gems also occur plentifully in the bed of Agate Creek, about four miles south of Forsayth, on the Etheridge field in Queensland. Garnets are found in Western Australia, and beautiful specimens of *crocidolite* have been obtained at Yarra Creek in the Murchison district. Rubies have been found at various places in New South

Wales and Queensland. *Tourmaline* has been found on Kangaroo Island, in South Australia, and *beryls* near Williamstown, Victoria, and at Poona in Western Australia. Very large but impure beryl crystals have been found at Ben Lomond in Tasmania. Some fine samples of *chiastolite* or luck stone have been found at Mt. Howden, near Bimbourie, in South Australia.

(C) GENERAL.

§ 15. Numbers Engaged, Wages Paid, and Accidents in Mining.

1. *Total Employment in Mining.*—The number of persons engaged in the mining industry in each State and in the Commonwealth fluctuates according to the season, the price of industrial metals, the state of the labour markets, and according also to the permanence of new finds, and the development of the established mines. During the year 1919 the number so employed was as follows :—

NUMBER OF PERSONS ENGAGED IN MINING, 1919.

State.	Number of Persons Engaged in Mining for						Total.
	Gold.	Silver, Lead, and Zinc.	Copper.	Tin.	Coal and Shale.	Other.	
New South Wales ..	1,656	6,556	1,148	2,171	18,178	2,750	32,459
Victoria	3,065	..	..	38	2,192	211	5,506
Queensland	792	145	2,521	1,114	2,259	1,190	8,021
South Australia	100	..	400	..	..	800	1,300
Western Australia ..	7,242	74	72	209	726	23	8,346
Tasmania	73	798	1,571	1,303	209	459	4,413
Northern Territory ..	60	3	12	190	..	257	522
Commonwealth ..	12,988	7,576	5,724	5,025	23,564	5,690	60,567

The following table shows the number of persons engaged in mining in the Commonwealth during each of the years 1891, 1901, and 1919, together with the proportion of the total population so engaged. The general falling-off since 1901 is due to the stagnation caused by the war, and largely also to the decline in the gold-mining industry :—

PROPORTION OF PERSONS ENGAGED IN MINING, 1891, 1901, AND 1919.

State.	1891.		1901.		1919.	
	Miners Employed.	No. per 100,000 of Population.	Miners Employed.	No. per 100,000 of Population.	Miners Employed.	No. per 100,000 of Population.
New South Wales	*30,604	2,700	36,615	2,685	32,459	1,621
Victoria	24,649	2,151	28,670	2,381	5,506	368
Queensland	11,627	2,934	13,352	2,664	8,021	1,106
South Australia	2,683	834	7,007	1,931	1,300	278
Western Australia	1,269	2,496	20,895	11,087	8,346	2,516
Tasmania	3,988	2,695	6,923	4,017	4,413	2,036
Northern Territory	..	..	..	..	522	..
Commonwealth ..	74,820	2,341	113,462	2,992	60,567	1,154

2. **Wages Paid in Mining.**—Particulars regarding wages paid in the mining industry, which in earlier issues of the Year Book were given in this section, have now been transferred to the section dealing with Labour and Industrial Statistics.

3. Accidents in Mining, 1919.—The following table gives particulars of the number of men killed and injured in mining accidents during the year 1919:—

NUMBERS KILLED AND INJURED IN MINING ACCIDENTS, 1919.

Mining for—	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	C'wealth.
				KILLED.				
Coal and shale	17	5	9	..	1	..	..	32
Copper ..	..	..	1	..	..	1	..	2
Gold ..	..	4	..	..	25	..	..	29
Silver, lead, and zinc ..	6	..	..	..	..	..	..	6
Tin	..	..	..	..	..	..	..	..
Other minerals	..	1	..	..	..	..	..	1
Total ..	23	10	10	..	26	1	..	70
				INJURED.				
Coal and shale	100	13	28	..	118	9	..	268
Copper ..	..	..	14	..	..	31	..	45
Gold ..	2	9	11	..	476	..	..	498
Silver, lead, and zinc ..	14	..	..	..	1	1	..	16
Tin	1	..	..	..	..	10	..	11
Other minerals	1	3	..	..	..	6	..	10
Total ..	118	25	53	..	595	57	..	848

§ 16. State Aid to Mining.

1. Introduction.—The terms and conditions under which the States granted aid in mining were alluded to at some length in previous issues (see Year Books 4 and 5), but owing to considerations of space they have been omitted from this issue. A résumé of what is being done in this direction at the present time is given hereunder.

2. New South Wales.—The chief aid given in this State is in the direction of assistance to prospectors. Up to the end of 1919 the total sum expended in this manner amounted to £498,127, of which £8,691 was advanced in 1919.

3. Victoria.—Since the inception of the Mining Development Act in 1897, the expenditure under its varying provisions has been £733,605, of which £339,635 was disbursed in connexion with advances for prospecting, £211,210 on boring, £69,603 on testing plants, £62,841 on roads and tracks, and £50,316 on purchase of cyanide plant, equipment of School of Mines, and miscellaneous. In 1920–21, £17,617 was expended as follows:—Construction and maintenance of State batteries, £4,611, boring, £11,180, advances to companies and private parties, £1,000, and £826 in geological and other surveys; in addition, £14,000 was lent to the Morning Star Gold Mine at Woods' Point, of which £3,000 has been repaid.

4. Queensland.—State assistance to the mining industry in 1919 amounted to £27,819, of which £8,808 consisted of loans in aid of deep sinking; £11,195 grants in aid of prospecting; £1,251 in aid of roads and bridges to gold and mineral fields; £3,452 advances under Mining Machinery Advances Acts; and £3,113 in connexion with boring for oil at Roma. At the State battery at Bamford 1,070 tons of tin ore and 253 tons of ore containing wolfram molybdenite were treated in 1919 for a recovery of 25 tons of tin, valued at £3,308, and 90 tons of wolfram, &c., concentrates, valued at £19,915. State assay offices are maintained at Cloncurry and Mareeba. During 1919 the Government acquired the smelters, railways, &c., of the Chillagoe Company.

5. **South Australia.**—Aid is given to the mining industry under the terms of the Mining Act of 1893, and previous measures. Up to the end of 1919 the total amount of subsidy paid was £65,109, of which £11,219 has been repaid, and £2,250 written off, leaving a debit of £51,640. Portion of this amount is represented by machinery that has fallen into the hands of the Government. Repayments are made from profits, but in only two instances have the profits enabled a full return to be made.

6. **Western Australia.**—Under the Mining Development Act of 1902 assistance was granted in 1919 in accordance with the subjoined statement:—Advances in aid of mining work and equipment of mines with machinery, £7,711; aid to prospectors, £2,328; advances in aid of boring, £352; subsidies paid on stone crushed for the public, £319; miscellaneous, £1,894; making a total of £12,604. The receipts under the Act exclusive of interest payments came to £2,835, of which £2,065 consisted of refunds of advances.

In 1919 there were 32 State batteries in operation. The amount expended thereon up to the end of 1919 was £91,981 from revenue and £286,233 from loan, giving a total of £378,214. During the year receipts amounted to £29,071, and working expenditure to £38,996.

The total value of gold and tin recovered to the end of 1919 at the State plants was £5,245,000, resulting from the treatment of 1,237,000 tons of gold ore and 79,000 tons of tin ore, together with a small amount from residues.

7. **Tasmania.**—Under the Mining Trust Fund Act of 1918 all balances existing at the end of 1918 were taken over from the Aid to Mining Act of 1912, and the various Appropriation Acts of 1913 and 1917. The fund was established for the purpose of assisting prospectors and of making the final payments in connexion with the closing of the State Argent Mine. During 1919 a sum of £2,066 was expended in aid to mining, of which £1,100 was advanced to the No. 6 Argent Prospecting Syndicate, while on the other hand £1,191 was received as royalties from tributers. The sum of £927 was expended on unwatering the State Argent Flat Mine in 1919, making the total expenditure £44,517. The total value of ore sold was £12,226, while royalties received amounted to £2,252, and revenue from sale of plant and stores to £859.

Tributers' surveys and assays are made free of charge by the Assay and Survey Office at Zeehan.

8. **Northern Territory.**—During the year 1919–20 the Government expenditure in aid of mining amounted to £4,976, of which £688 represented subsidies; £378 loss on crushing operations at Maranboy battery; £1,233 expenditure on driving and shaft sinking; £2,497 aid to Government prospecting party; and £180 cost of free assays. As it was considered that the method of assisting private prospectors was unsatisfactory the Government took over the control. The Government Prospecting Party was disbanded on the 30th June, 1920, and although no discovery of importance was made, useful information was obtained regarding the Central Tableland area and the headwater valleys and systems of the Katharine, Alligator, Mary, Waterhouse, Roper, and Ferguson rivers.

The Government maintains batteries at Maranboy and Hayes Creek.

§ 17. Commonwealth Government Control of Industrial Metals.

The proclamation under the Customs Act prohibiting the exportation of metals without the consent of the Minister for Trade and Customs is still in force, but consent is granted in every case where the contract relating to the sale of the metals has been registered with the Australian Metal Exchange.

§ 18. Estimated Metallic Contents of Ores, etc., Produced in Australia.

1. **Local Production.**—According to returns compiled by the Secretary of the Australian Metal Exchange from information obtained from mining companies and metal smelting and refining works, the quantities of the principal metals (exclusive of gold) extracted within the Commonwealth during the five years 1916 to 1920 were as follows :—

LOCAL EXTRACTION OF METALS, 1916 TO 1920.

Metal.		1916.	1917.	1918.	1919.	1920.
Silver	ozs.	5,251,604	6,437,079	9,920,486	6,684,888	712,651
Lead, pig ..	tons	107,635	125,100	166,731	82,732	4,077
Zinc	tons	5,227	4,131	6,221	6,544	9,665
Copper	tons	34,828	35,989	44,018	16,182	24,069
Tin	tons	3,879	3,990	4,582	4,102	4,108

2. **Metallic Contents of Ores, Concentrates, etc., Exported.**—The estimated metallic contents of ores, concentrates, etc., exported or sold for export during the five years 1916-20 are given in the following table :—

ESTIMATED METALLIC CONTENTS OF ORES, CONCENTRATES, ETC., EXPORTED OR SOLD FOR EXPORT, 1916 TO 1920.

Metal.		Contained in—	1916.	1917.	1918.	1919.	1920.
Silver	ozs.	Lead, Silver, Gold Bullion	2,520,563	1,977,603	..	..	141,263
		Lead Concentrates ..	324,189	..	..	..	..
		Zinc Concentrates ..	2,093,554	1,582,575	5,666,609	1,161,754	980,891
		Copper Ores	2,980	..	..	..	..
		Total	4,941,286	3,560,178	5,666,609	1,161,754	1,122,154
Lead	tons	Lead, Silver, Gold Bullion	30,699	22,766	..	..	1,939
		Lead Concentrates ..	7,352	..	..	..	4,122
		Zinc Concentrates ..	12,218	9,138	32,653	7,463	6,345
		Total	50,269	31,904	32,653	7,463	12,406
Zinc	tons	Lead Concentrates ..	1,020	..	..	..	..
		Zinc Concentrates ..	89,783	64,656	231,448	50,108	42,295
		Total	90,803	64,656	231,448	50,108	42,295
Copper	tons	Ores, Matte, etc. ..	4,399	..	..	..	2,117
Tin	tons	Concentrates	1,459	847	..	..	70

The quantities and values of the principal metals, ores, and concentrates of Australian produce exported overseas as recorded by the Customs Department for the year 1919–20 were as follows :—Antimony ore, 3,450 tons, £80,427 (to United Kingdom); zinc, bars, blocks, and rods, 2,015 tons, £97,589 (of which 1,974 tons went to United Kingdom); zinc concentrates, 29,669 tons, £166,303 (14,110 tons to United Kingdom, 4,895 tons to United States, and 7,880 tons to Japan); copper, ingots, 27,411 tons, £2,765,374 (20,223 tons to United Kingdom and 4,063 tons to Japan); tin, ingots, 3,432 tons, £957,205 (956 tons to United Kingdom and 1,985 tons to United States); lead, pig, 74,030 tons, £2,690,432 (53,264 tons to United Kingdom and 13,468 tons to Japan); lead, matte, 818 tons, £29,093 (to United Kingdom); silver and silver lead concentrates, 1,736 tons, £49,956 (1,578 tons to United Kingdom); molybdenite, 229 tons, £72,962 (136 tons to United Kingdom); scheelite, 327 tons, £58,839 (219 tons to United Kingdom); wolfram, 776 tons, £136,918 (648 tons to United Kingdom); platinum, osmium, iridium, etc., 1,397 ozs., £52,615 (201 ozs. to United Kingdom and 1,196 ozs. to United States); and pig iron, 19,229 tons, £164,419 (17,010 tons to Japan).

SECTION XIII.

MANUFACTURING INDUSTRIES.

§ 1. General.

1. **Industrial Progress.**—The statistics of manufactures in the Commonwealth shew that many industries have now been permanently established on a secure basis, and indicate a consistent progress both in regard to the extension of existing industries and the establishment of new ones. As will be seen from the following pages, this growth has been particularly rapid since the abolition of inter-colonial tariffs consequent upon the creation of the Commonwealth of Australia in 1901, the throwing open of the whole of the Australian markets to the industrial products of each State having facilitated the internal distribution of the products of Australian industry.

(i) *The Gold Discoveries, 1851.* Prior to the gold discoveries (1851) there was little development in the manufacturing industries of Australia. Reference to that period will be found in earlier issues of the Year Book (see No. 6, page 524.)

(ii) *Later Progress.* Soon after the discovery of gold, the construction of the first railways (1854) and the re-establishment of regular steamship communication with Europe (1856) helped to encourage the nascent industrial activity. The Colonies of New South Wales and Victoria, which had recently (1855) received the benefits of responsible government, soon turned their attention to the settlement of an agricultural population on the land. The Acts which were passed had a beneficial effect on the workers, giving them opportunities for employment not previously open to them, and fostering the manufacturing industries by increasing the measure of primary production. During the following years the various manufacturing industries prospered. The statistics of the States are not sufficiently complete or uniform to enable a statement of the progress of these industries to be given. The following table, however, shewing, so far as returns are available, the number of factories and the number of employees in each State at decennial periods from 1861 to 1911, and for each of the six years 1915 to 1919–20, will serve to indicate generally the progress which has been made. During recent years a change has been made in the period for which manufacturing returns are collected by several of the States, viz., New South Wales, Victoria, and South Australia, these States having adopted the financial year ending on the 30th June instead of the calendar year. Efforts were made to secure a uniform period of collection throughout the Commonwealth, and the financial year was favoured as being more suitable generally for statistical purposes, but the statisticians of those States which furnish information for the calendar year have so far failed to make the desired change. Owing to the late arrival of some of the returns, it was necessary, in 1917 and 1918, to combine the statistics of New South Wales, Victoria, and South Australia to 30th June with those of Queensland, Western Australia, and Tasmania to the 31st December, of the same year. This arrangement was not satisfactory on account of the late presentation of the figures for three of the more important States.

In order to bring the statistics more up to date, the returns for New South Wales Victoria, and South Australia were carried forward a year, and from 1918–19 onwards the returns as presented will consist of Queensland, Western Australia, and Tasmania to 31st December, and New South Wales, Victoria, and South Australia to 30th June, six months later. To permit of this alteration it was necessary in this issue to furnish particulars of manufacturing for both of the years 1918–19 and 1919–20.

NUMBER OF FACTORIES AND EMPLOYEES IN EACH STATE, 1861 TO 1919-20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
			NUMBER OF FACTORIES.				
1861 ..	601	531	..	..	..	..	..
1871 ..	1,813	1,740	..	..	..	..	..
1881 ..	2,961	2,488	571*e*	823*e*	..	..	..
1891 ..	3,056	3,141	1,328*e*	996*e*	175	..	..
1901 ..	3,367	3,249	2,110*e*	1,335*e*	662	420*f*	11,143
1911 ..	5,039	5,126	1,657	1,314	710	609	14,455
1915 ..	5,209*d*	5,413	1,775	1,266	780	589	15,092
1916*a* ..	5,210	5,413	1,782	1,266	771	568	15,010
1917*b* ..	5,356	5,445	1,793	1,286	759	540	15,179
1918*b* ..	5,414	5,627	1,778	1,285	764	553	15,421
1918–19*c* ..	5,460	5,720	1,778	1,313	764	553	15,588
1919–20*c* ..	5,662	6,038	1,754	1,368	817	652	16,291
			NUMBER OF EMPLOYEES.				
1861 ..	..	4,395	..	..	..	..	..
1871 ..	13,583	19,569	..	5,629*e*	..	..	..
1881 ..	31,191	43,209	..	10,995*e*	..	..	..
1891 ..	50,879	53,525	..	14,099*e*	..	..	..
1901 ..	66,135	66,529	26,172*e*	19,283*e*	12,198	7,466*f*	197,783
1911 ..	108,624	111,948	37,156	27,885	15,799	10,298	311,710
1915 ..	116,611*d*	113,834	42,079	25,496	14,631	8,420	321,071
1916*a* ..	116,401	113,834	39,983	25,496	12,676	8,362	316,752
1917*b* ..	117,997	116,970	40,446	26,010	12,168	8,079	321,670
1918*b* ..	120,554	118,241	40,990	26,634	12,917	8,713	328,049
1918–19*c* ..	127,591	122,349	40,990	27,915	12,917	8,713	340,475
1919–20*c* ..	144,454	136,522	40,891	29,442	15,409	10,016	376,734

(*a*) New South Wales for year ended 30th June, 1916; Victoria and South Australia, calendar year 1915; Queensland, Western Australia, and Tasmania, calendar year 1916. (*b*) New South Wales, Victoria, and South Australia for year ended 30th June; the remaining States for year ended 31st December. (*c*) New South Wales, Victoria, and South Australia for year ended 30th June; the remaining States for year ended 31st December, six months earlier. See last paragraph above. (*d*) For year ended 30th June, 1915. (*e*) Not on same basis as other States. (*f*) For 1902.

NOTE.—In this and all subsequent tables, except where specially mentioned, "Number of Employees," includes working proprietors.

2. **Defects in Industrial Statistics.**—A complete statistical account of the growth of the manufacturing industries in Australia unfortunately cannot be given for any lengthy period, owing to the fact that the necessary statistics have not been collected in past years by the several States upon a definite and identical basis. Even in respect of the definition of a "factory" or (so far as they might be included in related returns) the statistics of persons employed therein, there was formerly no common agreement. The relatively minor place that manufacturing industry held in relation to the total activity of Australia was, perhaps, responsible for the fact that the necessity for uniform method was not earlier recognised.

In 1896 it was agreed, as between Victoria and New South Wales, to adopt a common definition of the term "factory," viz., "any factory, workshop, or mill where four or more persons are employed or power is used." This agreement was adopted for the States generally at the Conference of State Statisticians in 1902, when it was decided, however, that the term "factory," should include also "all establishments, whether making for the trade, wholesale or retail, or for export." It was further agreed that industries should be arranged, as far as possible, under a uniform classification which was drawn up by the conference. As a result of the conference of 1902 a higher degree of uniformity in the collection and presentation of industrial statistics was attained in the several States, so that returns upon which anything like a proper comparative study of the development and progress of various manufacturing industries in the Commonwealth may be based date back only as far as the year 1903, when the resolution of the conference first came to be put into force. All the States did not, however, fall completely into line, and, as may be seen in the succeeding parts of this section, the comparisons afforded by the returns for the years 1903 to 1906 inclusive are in some cases subject to various

limitations. At the Conference of Statisticians held in Melbourne in 1906 special consideration was given to the methods to be adopted for the collection of statistical information regarding primary and secondary production and industry. The classification of industries prepared by the conference of 1902 was adopted, and a set of forms for the collection and compilation of industrial statistics on a definite and uniform basis in each State was agreed upon. The States have not, even yet, fallen entirely into line in collecting and classifying the returns. The particulars for the past twelve years are, however, in more complete co-ordination than formerly, and it is now possible to give particulars for the several States in greater detail and with greater uniformity throughout.

3. *Classification of Manufacturing Industries.*—Under the classification prepared by the Conference of Statisticians held in 1902, and adopted at that held in 1906, factories were placed under nineteen different categories, according to the nature of the industry carried on therein, most of the categories being further subdivided. Where two or more industries are carried on by one proprietor in one building, each industry is, when possible, treated as a separate establishment. The statement given hereafter shews the classification which has been adopted; it must be understood however, that this classification does not pretend to be exhaustive, but merely serves as a guide for the collection and presentation of statistics in the several States on a definite and uniform basis:—

CLASSIFICATION OF MANUFACTURING INDUSTRIES.

CLASS I.—TREATING RAW MATERIALS, ETC.

Boiling-down, Tallow Refining, etc.
Tanneries
Woolscouring and Fellmongering
Chaff-cutting, etc.

CLASS II.—OILS AND FAT, ETC.

Oil and Grease
Soap and Candles

CLASS III.—STONE, CLAY, GLASS, ETC.

Bricks and Tiles
Glass (including Bottles)
Glass (Ornamental)
Lime, Plaster, Cement and Asphalt
Marble, Slate, etc.
Modelling, etc.
Pottery and Earthenware

CLASS IV.—WORKING IN WOOD.

Boxes and Cases
Cooperage
Joinery
Saw Mills
Wood-turning, etc.

CLASS V.—METAL WORKS, MACHINERY, ETC.

Agricultural Implements
Brass and Copper
Cutlery
Engineering
Galvanised Iron-working
Ironworks and Foundries
Lead Mills
Railway Carriages
Railway and Tramway Workshops
Smelting
Stoves and Ovens
Tinsmithing
Wireworking
Other Metal Works

CLASS VI.—FOOD AND DRINK, ETC.

Bacon Curing
Butter Factories
Butterine and Margarine
Cheese Factories
Condensed Milk
Meat and Fish Preserving
Biscuits
Confectionery
Corn-flour, Oatmeal, etc.
Flour Mills
Jam and Fruit Canning
Pickles, Sauces and Vinegar
Sugar Mills
Sugar Refining
Aerated Waters, Cordials, etc.
Breweries
Condiments, Coffee, Spices, etc.
Distilleries
Ice and Refrigerating
Malting
Tobacco, Cigars, etc.

CLASS VII.—CLOTHING AND TEXTILE FABRICS.

Woollen and Tweed Mills
Boots and Shoes
Slop Clothing
Clothing (Tailoring)
Dressmaking and Millinery—
  Makers' material
  Customers' material
Dyeworks and Cleaning
Furriers
Hats and Caps
Waterproof and Oilskin
Shirts, Ties, and Scarfs
Rope and Cordage
Tents and Tarpaulins
Sailmaking

CLASS VIII.—BOOKS, PAPER, PRINTING, ETC.

Electrotyping and Stereotyping
Paper-making, Paper Boxes, Bags, etc.
Photo-engraving
Printing and Binding

CLASS IX.—MUSICAL INSTRUMENTS, ETC.

Musical Instruments and Sewing Machines

CLASS X.—ARMS AND EXPLOSIVES.

Arms and Explosives

CLASS XI.—VEHICLES, SADDLERY, HARNESS, ETC.

Coach and Wagon Building
Cycles and Motors
Perambulators
Saddlery, Harness, etc.
Spokes, etc.

CLASS XII.—SHIP AND BOAT BUILDING AND REPAIRING.

Docks and Slips
Ship and Boat Building and Repairing

CLASS XIII.—FURNITURE, BEDDING, ETC.

Bedding, Flock, and Upholstery
Billiard Tables
Furniture and Cabinet Making
Picture Frames
Window Blinds

CLASS XIV.—DRUGS AND CHEMICALS, ETC.

Chemicals, Drugs, and Medicines
Fertilisers
Paints, Varnishes, and By-products

CLASS XV.—SURGICAL AND OTHER SCIENTIFIC INSTRUMENTS.

Surgical, Optical, and other Scientific Instruments

CLASS XVI. — TIMEPIECES, JEWELLERY, AND PLATED WARE.

Electro-plating
Manufacturing Jewellery, etc.

CLASS XVII.—HEAT, LIGHT, AND POWER.

Coke Works
Electric Apparatus
Electric Light and Power
Gas Works and Kerosene
Lamps and Fittings, etc.
Hydraulic Power

CLASS XVIII.—LEATHERWARE (N.E.I.).

Leather Belting, Fancy Leather, Portmanteaux and Bags

CLASS XIX.—MINOR WARES.

Basket and Wickerware, Matting, etc.
Brooms and Brushware
Rubber Goods
Toys
Umbrellas
Other Industries

§ 2. Number of Factories.

1. **General.**—The presentation of the number of factories in each State does not furnish a clear indication of the extent or progress of the manufacturing industry throughout Australia.

Experience has shewn that the smaller establishments in many branches of industry tend to disappear before the superior competitive facilities of larger enterprises.

On the other hand, new factories are constantly under construction in districts advantageously located for manufacturing purposes, and small plants are as numerous as large ones.

(i) *Total Number of Factories in each State 1915 to 1919–20.* The following table presents, for the years 1915 to 1919–20, the total number of factories in each State of the Commonwealth :—

FACTORIES IN THE COMMONWEALTH, 1915 TO 1919–20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1915 ..	5,269*d*	5,413	1,775	1,266	780	589	15,092
1916*a* ..	5,210	5,413	1,782	1,266	771	568	15,010
1917*b* ..	5,356	5,445	1,793	1,286	759	540	15,179
1918*b* ..	5,414	5,627	1,778	1,285	764	553	15,421
1918–19*c*	5,460	5,720	1,778	1,313	764	553	15,588
1919–20*c*	5,662	6,038	1,754	1,368	817	652	16,291

(*a*) See note (*a*) first table this section. (*b*) See note (*b*) first table this section. (*c*) See note (*c*) first table this section. (*d*) For year ended 30th June, 1915.

(ii) *Classification of Factories in Commonwealth, 1915 to 1919–20.* The following table shews the total number of factories in the Commonwealth for each year from 1915 to 1919–20, classified on the basis indicated in § 1, 3 hereof :—

CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH, 1915 TO 1919–20.

Class of Industry.	1915.(*a*)	1916.(*b*)	1917.(*c*)	1918.(*c*)	1918–19 (*d*)	1919–20 (*d*)
	No.	No.	No.	No.	No.	No.
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	839	817	797	798	789	799
II. Treating oils and fats, animal, vegetable, etc.	99	96	92	90	88	92
III. Processes in stone, clay, glass, etc. ..	654	626	608	616	643	670
IV. Working in wood	1,702	1,661	1,646	1,713	1,762	1,912
V. Metal works, machinery, etc.	1,814	1,832	1,802	1,836	1,872	1,974
VI. Connected with food and drink, etc. ..	2,328	2,372	2,403	2,402	2,420	2,427
VII. Clothing and textile fabrics, etc.	3,117	3,085	3,176	3,177	3,155	3,311
VIII. Books, paper, printing and engraving ..	1,225	1,225	1,232	1,256	1,220	1,247
IX. Musical instruments, etc.	19	20	25	27	31	37
X. Arms and explosives	20	21	17	18	17	17
XI. Vehicles and fittings, saddlery and harness, etc.	1,337	1,334	1,374	1,423	1,449	1,514
XII. Ship and boat building and repairing ..	88	72	74	75	76	80
XIII. Furniture, bedding, and upholstery ..	693	697	704	722	743	817
XIV. Drugs, chemicals, and by-products ..	206	207	238	260	278	293
XV. Surgical and other scientific instruments ..	51	51	63	67	72	71
XVI. Jewellery, timepieces, and platedware ..	199	195	190	187	194	215
XVII. Heat, light, and power	474	466	479	489	506	515
XVIII. Leatherware, n.e.i.	67	69	74	81	83	99
XIX. Minor wares, n.e.i.	160	164	187	184	196	207
Total	15,092	15,010	15,179	15,421	15,588	16,291

(*a*) New South Wales figures for year ended 30th June, 1915. (*b*) See note (*a*) first table this section. (*c*) See note (*b*) first table this section. (*d*) See note (*c*) first table this section.

For the purpose of the returns in the above table the definition of a factory adopted at the Conference of Statisticians in 1902 (see § 1, 3 hereof) is used, viz., "Any factory, workshop or mill where four or more persons are employed or power is used." The total

number of factories has increased by 1,199 since 1915. A temporary depression occurred in the manufacturing industry during the war period, but since the signing of the Armistice the natural expansion of industry has been responsible for the large increase of 703 factories during 1919–20. As previously pointed out, any increase or decrease in the number of factories from year to year does not necessarily indicate a change in the position of the industry.

(iii) *Classification of Factories in each State, 1918–19* and *1919–20.* The following tables shew the number of factories in each State of the Commonwealth during 1918–19 and 1919–20, classified according to the nature of the industry. (See classification given in § 1, 3 hereof) :—

CLASSIFICATION OF FACTORIES IN EACH STATE, 1918–19.

Class of Industry.	N.S.W. 1918–19.	Vic. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wlth.
I. Treating raw material, product of agricul. & pastoral pursuits, etc.	244	312	41	105	38*a*	49*a*	789
II. Treating oils and fats, animal, vegetable, etc.	40	24	13	11	(*b*)	(*b*)	88
III. Processes in stone, clay, glass, etc.	290	180	30	78	34	22	643
IV. Working in wood	696	481	206	61	68	140	1,762
V. Metal works, machinery, etc. ..	630	746	214	165	78	30	1,872
VI. Connected with food & drink, etc.	805	651	477	248	139	100	2,420
VII. Clothing and textile fabrics, etc.	960	1,500	242	250	135	68	3,155
VIII. Books, paper, printing & engraving	467	421	146	87	73	26	1,220
IX. Musical instruments, etc. ..	18	12	..	1	..	..	31
X. Arms and explosives	5	11	..	1	..	..	17
XI. Vehicles and fittings, saddlery and harness, etc.	469	571	144	138	77	50	1,449
XII. Ship and boat building & repairing	37	12	10	7	4	6	76
XIII. Furniture, bedding, and upholstery	258	286	80	58	43	18	743
XIV. Drugs, chemicals, and by-products	115	120	8	15	13	7	273
XV. Surgical and other scientific instruments	18	32	7	8	7	..	72
XVI. Jewellery, timepieces & platedware	53	95	17	16	8	5	194
XVII. Heat, light, and power ..	237	166	32	21	31	18	505
XVIII. Leatherware, n.e.i.	32	40	3	5	3	..	83
XIX. Minor wares, n.e.i.	86	60	14	18	13	5	196
Total	5,460	5,720	1,778	1,313	764	553	15,588

(*a*) Includes Class II. (*b*) Included in Class I.

CLASSIFICATION OF FACTORIES IN EACH STATE, 1919–20.

Class of Industry.	N.S.W. 1919–20.	Vic. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wlth.
I. Treating raw material, product of agricul. & pastoral pursuits, etc.	237	305	45	106	42*a*	62	799
II. Treating oils and fats, animal, vegetable, etc.	39	26	13	11	(*b*)	3	92
III. Processes in stone, clay, glass, etc.	290	196	87	89	37	21	670
IV. Working in wood	754	512	297	89	82	178	1,912
V. Metal works, machinery, etc. ..	671	794	214	170	77	48	1,974
VI. Connected with food & drink, etc.	783	676	460	240	152	116	2,427
VII. Clothing and textile fabrics, etc.	1,035	1,573	233	259	134	77	3,311
VIII. Books, paper, printing & engraving	473	437	144	89	76	28	1,247
IX. Musical instruments, etc. ..	23	12	..	2	..	..	37
X. Arms and explosives	5	10	..	2	..	..	17
XI. Vehicles and fittings, saddlery and harness, etc.	484	612	138	146	85	49	1,514
XII. Ship and boat building & repairing	36	12	10	9	6	7	80
XIII. Furniture, bedding and upholstery	270	332	86	62	47	20	817
XIV. Drugs, chemicals, and by-products	117	132	3	16	15	10	293
XV. Surgical and other scientific instruments	16	33	6	8	8	..	71
XVI. Jewellery, timepieces & platedware	61	99	19	18	9	9	215
XVII. Heat, light, and power ..	236	170	22	25	52	16	516
XVIII. Leatherware, n.e.i.	37	45	2	5	3	1	93
XIX. Minor wares, n.e.i.	93	62	15	20	12	5	207
Total	5,662	6,038	1,754	1,368	817	652	16,291

(*a*) Includes Class II. (*b*) Included in Class I.

§ 3. Factories Classified by Number of Employees.

1. **General.**—A more scientific method of measuring the size of the manufacturing establishments in Australia is furnished by an analysis of the factories grouped according to the average number of employees in each.

The following tables shew, for each State, the number of factories classified according to number of hands employed, and the average number of hands employed therein, during 1918–19 and 1919–20 :—

CLASSIFICATION OF FACTORIES IN EACH STATE ACCORDING TO NUMBER OF HANDS EMPLOYED, 1918–19.

No. of Persons Employed in each Factory.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tasmania. 1918.	C'wealth.
			NUMBER OF FACTORIES.				
Under 4 ..	927	1,182	334	177	169	122	2,911
4 ..	514	621	165	157	79	68	1,604
5 to 10 ..	1,821	1,864	548	479	244	188	5,144
11 to 20 ..	985	922	328	219	135	76	2,665
21 to 50 ..	756	686	242	178	90	67	2,019
51 to 100 ..	245	237	76	66	29	23	676
Over 100 ..	212	208	85	37	18	9	569
Total ..	5,460	5,720	1,778	1,313	764	553	15,588
			AVERAGE NUMBER OF HANDS EMPLOYED.				
Under 4 ..	2,089	2,671	738	440	356	267	6,561
4 ..	2,056	2,484	660	628	316	272	6,416
5 to 10 ..	12,616	13,008	3,821	3,323	1,738	1,276	35,782
11 to 20 ..	14,376	13,534	4,778	3,139	1,933	1,085	38,845
21 to 50 ..	23,848	21,933	7,556	5,645	2,869	2,101	63,952
51 to 100 ..	17,205	16,516	5,369	4,689	2,047	1,564	47,390
Over 100 ..	55,401	52,203	18,068	10,051	3,658	2,148	141,529
Total	127,591	122,349	40,990	27,915	12,917	8,713	340,475

CLASSIFICATION OF FACTORIES IN EACH STATE ACCORDING TO NUMBER OF HANDS EMPLOYED, 1919–20.

No. of Persons Employed in each Factory.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tasmania. 1919.	C'wealth.
			NUMBER OF FACTORIES.				
Under 4 ..	939	1,153	321	176	161	128	2,878
4 ..	499	601	166	128	73	67	1,534
5 to 10 ..	1,863	1,970	543	508	285	254	5,423
11 to 20 ..	1,031	1,034	310	246	130	80	2,831
21 to 50 ..	807	773	259	191	112	88	2,230
51 to 100 ..	273	272	72	73	31	24	745
Over 100 ..	250	235	83	46	25	11	650
Total ..	5,662	6,038	1,754	1,368	817	652	16,291

CLASSIFICATION OF FACTORIES IN EACH STATE ACCORDING TO NUMBER OF HANDS EMPLOYED, 1919-20—*continued.*

No. of Persons Employed in each Factory.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tasmania. 1919.	C'wealth.
			AVERAGE NUMBER OF HANDS EMPLOYED.				
Under 4 ..	2,091	2,632	687	438	350	289	6,487
4 ..	1,996	2,404	664	512	292	268	6,136
5 to 10 ..	13,113	13,717	3,815	3,545	1,978	1,731	37,899
11 to 20 ..	15,186	15,147	4,545	3,565	1,901	1,144	41,488
21 to 50 ..	25,198	24,415	8,104	5,912	3,483	2,676	69,788
51 to 100 ..	19,048	18,672	5,091	4,942	2,117	1,730	51,600
Over 100 ..	67,822	59,535	17,985	10,526	5,288	2,178	163,336
Total ..	144,454	136,522	40,891	29,442	15,409	10,016	376,734

Reference to the following table will shew a tendency for the proportionate number of hands employed in the larger establishments to still further increase and for that of the smaller factories to diminish. During the quinquennial period under discussion, the ratio of hands in factories employing under 21 hands to total number of employees in all factories shews a decline from 26.33 per cent. in 1915 to 24.42 in 1919–20. *The larger establishments with 101 hands and upwards during the same period exhibit* an increase from 41.99 to 43.36 per cent. of total employed. The average number of hands per establishment in 1915 was 21.27, and in 1919–20, 23.13.

CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH ACCORDING TO NUMBER OF HANDS EMPLOYED DURING THE YEARS 1915 TO 1919–20.

Year.	Establishments Employing on the Average—							
	20 hands and under.		21 to 100 hands.		101 hands and upwards.		Total.	
	Establishments.	Hands.	Establishments.	Hands.	Establishments.	Hands.	Establishments.	Hands.
1915(*a*)—								
Number	12,106	84,545	2,445	101,722	541	134,804	15,092	321,071
Average per establishment	..	6.99	..	41.60	..	249.18	..	21.27
Percentage on total ..	80.22	26.33	16.20	31.68	3.58	41.99	100.00	100.00
1916(*b*)—								
Number	12,081	83,263	2,386	98,107	543	135,382	15,010	316,752
Average per establishment	..	6.89	..	41.11	..	249.32	..	21.10
Percentage on total ..	80.49	26.29	15.90	30.97	3.61	42.74	100.00	100.00
1917(*c*)—								
Number	12,158	84,685	2,491	102,695	530	134,290	15,179	321,670
Average per establishment	..	6.97	..	41.23	..	253.38	..	21.19
Percentage on total ..	80.10	26.33	16.41	31.92	3.49	41.75	100.00	100.00
1918(*c*)—								
Number	12,240	85,425	2,635	106,782	546	135,842	15,421	328,049
Average per establishment	..	6.98	..	41.28	..	245.13	..	21.27
Percentage on total ..	79.37	26.04	17.09	33.16	3.54	40.80	100.00	100.00
1918–19(*d*)—								
Number	12,324	87,604	2,695	111,342	569	141,529	15,588	340,475
Average per establishment	..	7·11	..	41·31	..	248·73	..	21·84
Percentage on total ..	79·06	25·73	17·29	32·70	3·65	41·57	100·00	100·00
1919–20(*d*)—								
Number	12,666	92,010	2,975	121,388	650	163,336	16,291	376,734
Average per establishment	..	7·26	..	40·80	..	251·29	..	23·13
Percentage on total ..	77·75	24·42	18·26	32·22	3·99	43·36	100·00	100·00

(*a*) New South Wales figures for year ended 30th June, 1915. (*b*) See note (*a*) first table this section. (*c*) See note (*b*) first table this section. (*d*) See note (*c*) first table this section.

§ 4. Factories Using Mechanical Power.

1. **Use of Mechanical Power.**—The statistics relating to the utilization of mechanical power in factories bring into relief another phase of industrial development in Australia.

The following tables reveal a gradual increase in the number of factories using mechanical power, and a more striking increase in the amount of power used, while a marked decline is noticeable in the number of factories using no power, thus affording definite statistical evidence of the growth of power-driven machinery in Australia, and of its increasing ascendency over hand labour.

The principal motive power is steam, but the chief towns possess electric power stations owned either by the Government, or by public bodies or private companies, from which many factories find it convenient to derive their motive power.

(i) *Utilization of Mechanical Power in Factories in each State.* The following tables shew the number of factories in which machinery was worked by steam, gas, oil, electricity, or water and the horse-power of engines or motors used, in each State and in the Commonwealth during 1918–19 and 1919–20:—

UTILIZATION OF MECHANICAL POWER IN FACTORIES IN EACH STATE, 1918–19.

State.	Number of Establishments.			Actual Horse-power of Engines Used.					
	Using Machinery worked by Steam, Gas, Oil, Electricity, or Water.	Others.	Total.	Steam.	Gas.	Oil.	Electricity.	Water.	Total.
	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
N.S.W., 1918–19	4,151	1,009	5,460	181,611	14,227	1,935	74,567	63	272,403
Vict., 1918–19 ..	4,435	1,285	5,720	91,245	18,929	2,443	40,791	..	153,408
Q'land., 1918 ..	1,370	408	1,778	46,553	9,515	1,522	13,811	40	71,441
S. Aust., 1918–19	1,042	271	1,313	29,241	8,169	2,094	11,034	237	50,775
W. Aust., 1918 ..	627	137	764	38,580	5,374	780	6,489	..	51,223
Tas., 1918 ..	460	93	553	5,742	223	282	12,680	11,769	30,696
Commonwealth	12,385	3,203	15,588	392,972	56,437	9,056	159,372	12,109	629,946

UTILIZATION OF MECHANICAL POWER IN FACTORIES IN EACH STATE, 1919–20.

State.	Number of Establishments.			Actual Horse-power of Engines Used.					
	Using Machinery worked by Steam, Gas, Oil, Electricity, or Water.	Others.	Total.	Steam.	Gas.	Oil.	Electricity.	Water.	Total.
	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
N.S.W., 1919–20	4,730	932	5,662	171,590	13,342	2,417	78,287	165	265,801
Vict., 1919–20 ..	4,737	1,301	6,038	95,747	19,183	3,059	48,814	..	166,803
Q'land., 1919 ..	1,360	394	1,754	59,510	10,725	2,006	15,945	21	88,207
S. Aust., 1919–20	1,093	275	1,368	29,120	9,019	2,400	11,849	256	52,644
W. Aust., 1919 ..	675	142	817	39,570	5,872	1,737	7,671	..	54,850
Tas., 1919 ..	551	101	652	6,616	208	253	13,910	10,725	31,711
Commonwealth	13,146	3,145	16,291	402,152	58,349	11,872	176,476	11,167	660,016

The preponderance of horse-power employed in the New South Wales factories is the result of the location in that State of the largest number of industries demanding a considerable amount of power; Victoria, on the other hand, has the largest number of establishments, such as those connected with clothing and textile fabrics, wherein much less mechanical power is utilized.

The number of establishments in the Commonwealth during 1919–20 using machinery worked by steam, gas, oil, electricity, or water was 13,146, or 80.70 per cent. of the total; 3,145 establishments, representing 19.30 per cent., used no mechanical power. The total actual horse-power in use was 660,016, distributed in the following proportions:—Steam, 60.93 per cent.; gas, 8.84 per cent.; oil, 1.80 per cent.; electricity, 26.74 per cent.; and water, 1.69 per cent.

(ii) *Utilization of Mechanical Power used in Factories in the Commonwealth*, 1915 *to* 1919–20. The following table shews the horse-power of engines used in connexion with factories in the Commonwealth during each of the last six years :—

UTILIZATION OF MECHANICAL POWER IN FACTORIES IN COMMONWEALTH, 1915 TO 1919-20.

Year.	Number of Establishments. Using Machinery worked by Steam, Gas, Oil, Electricity or Water.	Others.	Total.	Actual Horse-power of Engines used. Steam.	Gas.	Oil.	Electricity.	Water.	Total.
	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
1915(a) ..	11,438	3,654	15,092	333,494	54,934	8,558	107,788	..	504,834
1916(b) ..	11,550	3,460	15,010	349,157	53,921	8,541	118,149	..	529,768
1917(c) ..	11,931	3,248	15,179	358,346	54,825	8,687	131,819	6,584	560,261
1918(c) ..	12,250	3,171	15,421	384,794	56,137	8,576	148,732	12,087	610,326
1918–19(d) ..	12,385	3,203	15,588	392,972	56,437	9,056	159,372	12,109	620,946
1919–20(d) ..	13,146	3,145	16,291	402,152	58,349	11,872	176,476	11,167	660,016

(a) New South Wales figures for year ended 30th June, 1915. (b) See note (a) first table this section. (c) See note (b) first table this section. (d) See Note (c), first table this Section.

From this table it appears that the number of manufacturing establishments using power increased from 11,438 in 1915 to 13,146 in 1919–20, an increase of 1,708, or 11½ per cent. During the same period the number of establishments using no power decreased from 3,654 to 3,145, a decrease of 509, or 13.93 per cent. The corresponding increase in the actual horse-power of engines used was 155,182, or 30.74 per cent.

(iii) *Classification of Mechanical Power Used in Factories in each State.* The following tables give a classification of the actual horse-power of engines used in factories of different descriptions in each State during 1918–19 and 1919–20 ;—

ACTUAL HORSE-POWER OF ENGINES USED IN VARIOUS FACTORIES IN EACH STATE, 1918–19.

Class of Industry.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	*7,567	7,151	1,029	2,019	(a) 536	(a) 531	18,832
II. Treating oils and fats, animal, vegetable, etc. ..	1,772	570	135	224	(b)	(b)	2,701
III. Processes in stone, clay, glass, etc.	14,760	7,103	1,830	2,770	589	397	27,449
IV. Working in wood ..	17,519	11,771	8,967	1,928	6,377	1,937	48,499
V. Metal works, machinery, etc.	56,431	14,580	6,389	12,084	4,234	5,963	99,681
VI. Connected with food and drink, etc.	32,358	28,934	33,358	8,387	5,491	1,739	110,267
VII. Clothing and textile fabrics, etc.	6,837	9,690	1,377	920	281	323	19,428
VIII. Books, paper, printing, and engraving	6,702	6,023	1,311	1,242	732	236	16,246
IX. Musical instruments, etc.	344	151	..	6	..	..	501
X. Arms and explosives ..	1,044	680	..	1	..	..	1,725
XI. Vehicles and fittings, saddlery and harness, etc. ..	2,049	1,567	431	849	249	147	5,292
XII. Ship and boat building and repairing	4,462	1,459	120	140	30	28	6,239
XIII. Furniture, bedding, and upholstery	2,455	1,773	831	981	422	229	6,691
XIV. Drugs, chemicals, and by-products	2,290	2,737	35	2,026	1,060	31	8,179
XV. Surgical and other scientific instruments	38	43	17	18	8	..	124
XVI. Jewellery, timepieces, and plated ware	297	288	60	62	17	8	672
XVII. Heat, light, and power ..	114,361	52,029	15,508	17,064	31,117	19,120	249,199
XVIII. Leatherware, n.e.i. ..	266	307	16	6	5	..	599
XIX. Minor wares, n.e.i. ..	852	6,602	88	48	75	7	7,622
Total	272,403	153,408	71,441	50,775	51,223	30,696	629,946

(a) Includes Class II. (b) Included in Class I.

ACTUAL HORSE-POWER OF ENGINES USED IN VARIOUS FACTORIES IN EACH STATE, 1919-20.

Class of Industry.	N.S.W. 1919-20.	Victoria. 1919-20.	Q'land. 1919.	S. Aust. 1919-20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	8,645	7,766	1,073	2,271	693	557	21,005
II. Treating oils and fats, animal, vegetable, etc. ..	1,992	651	152	267	..	47	3,109
III. Processes in stone, clay, glass, etc.	16,130	8,249	2,351	3,268	931	373	31,302
IV. Working in wood ..	18,119	13,469	9,161	2,226	8,050	2,691	53,656
V. Metal works, machinery, etc.	54,809	17,513	12,648	11,509	3,967	6,346	106,792
VI. Connected with food and drink, etc.	34,347	31,297	36,434	8,573	7,846	1,911	120,408
VII. *Clothing and textile fabrics, etc.*	7,473	11,590	1,317	950	316	368	22,014
VIII. Books, paper, printing, and engraving	7,425	6,268	1,462	1,277	741	251	17,444
IX. Musical instruments, etc. ..	365	169	..	6	..	..	540
X. Arms and explosives ..	1,574	614	..	4	..	..	2,192
XI. Vehicles and fittings, saddlery and harness, etc. ..	2,062	1,741	524	983	298	162	5,770
XII. Ship and boat building and repairing	4,794	1,410	109	462	37	48	6,860
XIII. Furniture, bedding, and upholstery	2,778	2,128	951	1,030	559	221	7,667
XIV. Drugs, chemicals, and by-products	2,483	3,714	87	2,348	1,008	46	9,631
XV. Surgical and other scientific instruments	60	40	16	15	14	..	145
XVI. Jewellery, timepieces, and plated ware	348	323	53	66	16	15	839
XVII. Heat, light, and power ..	101,032	52,650	21,921	17,303	30,324	18,663	241,893
XVIII. Leatherware, n.e.i. ..	198	360	12	6	3	2	571
XIX. Minor wares, n.e.i. ..	1,179	6,831	46	60	52	10	8,178
Total	265,801	166,803	88,207	52,644	54,850	31,711	660,016

(iv) *Classification of Mechanical Power Used in Factories in the Commonwealth, 1915 to 1919–20.* The following table shews a similar classification of the actual horse-power of engines used in manufacturing industries in the Commonwealth during the years 1915 to 1919–20 inclusive :—

ACTUAL HORSE-POWER OF ENGINES USED IN VARIOUS FACTORIES IN THE COMMONWEALTH, 1915 TO 1919-20.

Class of Industry.	1915. (a)	1916. (b)	1917. (c)	1918. (c)	1918–19. (d)	1919–20. (d)
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	15,294	15,963	15,483	17,842	18,882	21,005
II. Treating oils and fats, animal, vegetable, etc.	2,028	2,435	2,140	2,282	2,701	3,109
III. Processes in stone, clay, glass, etc. ..	25,554	24,736	24,275	26,383	27,449	31,302
IV. Working in wood	47,894	45,997	45,712	47,560	48,499	53,656
V. Metal works, machinery, etc. ..	77,646	85,783	86,991	94,434	99,681	106,792
VI. Connected with food and drink, etc. ..	92,923	94,477	100,803	105,390	110,267	120,408
VII. Clothing and textile fabrics, etc. ..	15,470	16,353	17,923	18,362	19,428	22,014
VIII. Books, paper, printing, and engraving	13,987	14,125	14,590	16,225	16,246	17,444
IX. Musical instruments, etc.	480	448	613	664	501	540
X. Arms and explosives	855	910	1,739	1,547	1,725	2,192
XI. Vehicles and fittings, saddlery and harness, etc.	4,215	4,310	4,620	4,851	5,292	5,770
XII. Ship and boat building and repairing	5,824	4,333	5,445	5,310	6,239	6,860
XIII. Furniture, bedding, and upholstery ..	5,638	5,894	5,876	6,576	6,691	7,667
XIV. Drugs, chemicals, and by-products ..	6,201	6,555	7,396	8,102	8,179	9,631
XV. Surgical and other scientific instruments	74	72	109	120	124	145
XVI. Jewellery, timepieces, and plated ware	554	586	658	635	672	839
XVII. Heat, light, and power	185,558	202,232	217,980	245,787	249,190	241,893
XVIII. Leatherware, n.e.i.	369	377	444	512	590	571
XIX. Minor wares, n.e.i.	4,270	4,232	7,474	7,784	7,622	8,178
Total	504,534	529,766	560,261	610,326	620,946	660,016

(a) New South Wales figures for year ended 30th June, 1915. (b) See note (a) first table this section. (c) See note (b) first table this section. (d) See note (c) first table this section.

From the above table it will be seen that the actual horse-power of engines used increased in practically all of the various branches of industry during the last five years. The industries using the greatest amount of power were Class XVII. Heat, light, and power; Class VI. Connected with food and drink; and Class V. Metal works, machinery, etc. *These three classes, which together accounted for 71 per cent. of the total power* used in 1919–20, increased their horse-power from 356,127 to 469,093 during the five years under review, and are mainly responsible for the development of mechanical power in factories since 1915.

§ 5. Numbers Employed in Australian Factories.

1. **Total Number Employed.**—Each person employed in and about a factory, in whatever capacity, is now included as a factory employee, consequently every proprietor who works in his business is counted as an employee, and all "outworkers" (see paragraph 5 hereinafter) are also included. The individuals embraced may be classed under the following heads, viz.:—(i) Working proprietors; (ii) managers and overseers; (iii) accountants and clerks; (iv) engine-drivers and firemen; (v) skilled and unskilled workers in the factories, mills, or workshops; (vi) carters and messengers; and (vii) others.

(i) *Average Numbers Employed, 1915 to 1919–20.* The following table shews, for each year from 1915 to 1919–20 inclusive, (*a*) the average numbers of persons (including both sexes and all ages) employed in manufacturing industries in each State; (*b*) the percentage of the numbers employed in each State on the total numbers employed in the Commonwealth; and (*c*) the numbers employed per ten thousand of the mean population in each State and the Commonwealth :—

AVERAGE NUMBER OF PERSONS EMPLOYED IN MANUFACTURING INDUSTRIES, 1915 TO 1919–20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
			AVERAGE NUMBER.				
1915	116,611*a*	113,834	42,079	25,496	14,631	8,420	321,071
1916(*b*) ..	116,401	113,834	39,983	25,496	12,676	8,362	316,752
1917(*c*) ..	117,997	116,970	40,446	26,010	12,168	8,079	321,670
1918(*c*) ..	120,554	118,241	40,990	26,634	12,917	8,713	328,049
1918–19(*d*) ..	127,591	122,349	40,990	27,915	12,917	8,713	340,475
1919–20(*d*) ..	144,454	136,522	40,891	29,442	15,409	10,016	376,734
			PERCENTAGE ON COMMONWEALTH TOTAL.				
	%	%	%	%	%	%	%
1915	36.32	35.45	13.11	7.94	4.56	2.62	100.00
1916(*b*) ..	36.75	35.94	12.62	8.05	4.00	2.64	100.00
1917(*c*) ..	36.68	36.37	12.57	8.09	3.78	2.51	100.00
1918(*c*) ..	36.75	36.04	12.49	8.12	3.94	2.66	100.00
1918–19(*d*) ..	37.48	35.93	12.04	8.20	3.79	2.56	100.00
1919–20(*d*) ..	38.34	36.24	10.85	7.82	4.09	2.66	100.00
			PER 10,000 OF MEAN POPULATION.				
1915	626*a*	798	612	580	454	422	650
1916(*b*) ..	622	798	590	580	403	422	642
1917)*c*) ..	635	836	600	601	394	406	659
1918(*c*) ..	638	838	595	611	415	428	663
1918–19(*d*) ..	661	855	595	626	415	428	679
1919–20(*d*) ..	721	913	574	629	476	474	721

(*a*) For year ended 30th June, 1915. (*b*) See note (*a*) first table this section. (*c*) See note (*b*) first table this section. (*d*) See note (*c*) first table this section.

(ii) *Rates of Increase, 1915 to 1919–20.* The following table shews the percentage of increase or decrease on the average number of persons employed for the preceding year from 1916 to 1919–20. The figures for the past five years are somewhat vitiated by the change in dates of collecting the statistics in New South Wales, Victoria, and South Australia :—

PERCENTAGE OF INCREASE ON AVERAGE NUMBER EMPLOYED, 1916 TO 1919-20.

Years.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	%	%	%	%	%	%	%
1915-16(*a*) ..	−0.18	−3.86	−4.98	−5.13	−13.36	−0.69	−1.35
1916-17(*b*) ..	1.37	2.75	1.16	2.02	− 4.01	−3.38	1.55
1917–18(b) ..	*2.17*	*1.09*	*1.35*	*2.40*	*8.18*	7.85	1.98
1918—1918-19(*c*) ..	5.84	3.47	1.35*d*	4.81	6.16*d*	7.85*d*	3.79
1918-19—1919-20(*c*)	13.22	11.58	−0.24	5.47	19.29	14.95	10.65

NOTE.—The minus sign (−) indicates decrease.
(*a*) See note (*a*) first table this section. (*b*) See note (*b*) first table this section.
(*c*) See note (*c*) first table this section. (*d*) Twelve months ended 31st December, 1918.

2. **Classification of Numbers Employed in Factories in the Commonwealth, 1915 to 1919–20.**—The following table gives a classification of the average numbers of persons employed in factories of different descriptions in the Commonwealth during the years 1915 to 1919–20 inclusive :—

AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES IN THE COMMONWEALTH, 1915 TO 1919-20.

Class of Industry.	1915.(*a*)	1916.(*b*)	1917.(*c*)	1918.(*c*)	(*d*) 1918–19.	(*d*) 1919–20.
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	9,306	9,009	9,411	9,984	10,775	12,040
II. Treating oils and fats, animal, vegetable, etc.	2,523	2,399	2,554	2,726	2,604	3,075
III. Processes in stone, clay, glass, etc. ..	12,616	11,694	10,949	12,575	13,761	16,271
IV. Working in wood	26,030	23,336	22,079	24,112	25,825	29,365
V. Metal works, machinery, etc. ..	65,368	65,850	62,115	60,392	62,679	70,025
VI. Connected with food and drink, etc.	49,266	48,272	52,781	56,297	59,891	61,757
VII. Clothing and textile fabrics, etc. ..	78,952	80,292	83,201	82,002	81,441	89,424
VIII. Books, paper, printing and engraving	24,928	24,890	24,954	25,054	25,000	26,328
IX. Musical instruments, etc.	515	542	652	677	714	902
X. Arms and explosives	2,028	2,571	2,951	2,225	1,986	1,662
XI. Vehicles and fittings, saddlery and harness, etc.	12,350	12,008	12,196	12,672	13,630	15,525
XII. Ship and boat building and repairing	6,097	4,605	4,953	4,569	6,119	8,343
XIII. Furniture, bedding, and upholstery ..	8,961	8,716	9,072	9,542	9,827	11,317
XIV. Drugs, chemicals, and by-products ..	4,601	4,738	5,036	5,564	5,861	6,436
XV. Surgical & other scientific instruments	301	293	361	415	453	495
XVI. Jewellery, timepieces, and plated ware	1,878	1,835	1,975	2,119	2,345	2,719
XVII. Heat, light, and power	9,939	10,018	10,329	10,714	10,912	11,991
XVIII. Leatherware, n.e.i.	1,292	1,376	1,488	1,647	1,799	2,283
XIX. Minor wares, n.e.i.	4,120	4,400	4,613	4,763	4,853	5,829
Total	321,071	316,752	321,670	328,049	340,475	376,734

(*a*) New South Wales figures for year ended 30th June, 1915. (*b*) See note (*a*) first table this section.
(*c*) See note (*b*) first table this section. (*d*) See Note (*c*) first Table this Section.

The number of persons employed in factories increased by 55,663 since 1915. During the war period, considerable numbers of the male population were withdrawn for military purposes, but the 1919–20 figures shew that the manufacturing industry has not only regained its numerical strength, but has largely added to its pre-war totals of the number of employees.

3. Classification of Numbers Employed in each State, according to Class of Industry.—The following tables shew a similar classification of employees in manufacturing industries in each State during 1918–19 and 1919–20 :—

AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES IN EACH STATE, 1918–19.

Class of Industry.	N.S.W. 1918–19.	Vic. 1918–19	Q'land. 1918.	S.A. 1918–19	W.A. 1918.	Tas. 1918.	C'wlth.
I. Treating raw material, product of agricul. and pastoral pursuits, etc.	4,145	4,204	746	976	365*a*	330*a*	10,775
II. Treating oils and fats, animal, vegetable, etc.	1,385	807	173	230	(*b*)	(*b*)	2,604
III. Processes in stone, clay, glass, etc.	6,531	4,436	823	1,322	409	240	13,761
IV. Working in wood	8,374	7,669	4,385	1,264	2,544	1,589	25,825
V. Metal works, machinery, etc. ..	28,129	16,623	5,770	8,261	2,518	1,478	62,679
VI. Connected with food and drink, etc.	17,955	19,185	15,001	3,989	1,906	1,855	59,891
VII. Clothing and textile fabrics, etc. ..	26.266	39,739	6,094	5,012	2,132	1,298	81,441
VIII. Books, paper, printing, and engraving	9,312	8,708	2,016	1,788	1,085	691	25,000
IX. *Musical instruments, etc.* ..	445	255	..	14	..	..	714
X. Arms and explosives	1,119	864	..	3	..	..	1,986
XI. Vehicles and fittings, saddlery, and harness, etc.	4,697	4,974	1,302	1,718	544	395	13,630
XII. Ship and boat building & repairing	5,097	692	115	145	20	50	6,119
XIII. Furniture, bedding, and upholstery	3,844	3,023	1,240	952	447	321	9,827
XIV. Drugs, chemicals, and by-products	2,274	2,349	91	783	343	21	5,861
XV. *Surgical and other scientific instruments*	186	159	45	34	29	..	453
XVI. Jewellery, timepieces, & plated ware	767	1,199	117	171	62	29	2,345
XVII. Heat, light, and power	4,092	4,280	952	943	320	367	10,912
XVIII. Leatherware, n.e.i.	855	762	112	47	23	..	1,799
XIX. Minor wares, n.e.i.	1,678	2,512	208	254	161	40	4,853
Total	127,591	122,349	40,990	27,016	12,917	8,718	340,475

(*a*) Includes Class II. (*b*) Included in Class I.

AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES IN EACH STATE, 1919–20.

Class of Industry.	N.S.W. 1919–20.	Vic. 1919–20	Q'land. 1919.	S.A. 1919–20	W.A. 1919.	Tas. 1919.	C'wlth.
I. Treating raw material, product of agricul. and pastoral pursuits, etc.	4,474	4,750	772	1,189	422*a*	424	12,040
II. Treating oils and fats, animal, vegetable, etc.	1,744	878	172	258	(*b*)	28	3,075
III. Processes in stone, clay, glass, etc.	8,142	4,828	827	1,690	520	255	16,271
IV. Working in wood	9,205	8,602	4,828	1,456	3,527	2,047	29,865
V. Metal works, machinery, etc. ..	32,057	19,348	6,972	7,261	2,722	1,665	70,025
VI. Connected with food and drink, etc.	19,282	20,545	13,320	4,159	2,535	1,916	61,757
VII. Clothing and textile fabrics, etc. ..	29,429	44,245	6,616	5,842	2,813	1,479	89,424
VIII. Books, paper, printing and engraving	10,647	9,148	3,090	2,027	1,146	768	26,826
IX. Musical instruments, etc. ..	596	285	..	21	..	..	902
X. Arms and explosives	819	839	..	4	..	..	1,662
XI. Vehicles and fittings, saddlery, and harness, etc.	5,150	5,707	1,283	2,226	667	492	15,525
XII. Ship and boat building & repairing	6,908	938	117	275	25	80	8,343
XIII. Furniture, bedding, and upholstery	4,364	3,657	1,284	1,063	530	419	11,317
XIV. Drugs, chemicals and by-products	2,620	2,517	107	809	364	29	6,436
XV. Surgical and other scientific instruments	199	174	51	35	36	..	495
XVI. Jewellery, timepieces, & plated ware	896	1,347	146	219	72	39	2,719
XVII. Heat, light, and power	4,758	4,466	1,021	1,075	846	825	11,991
XVIII. Leatherware, n.e.i.	1,031	1,045	73	50	25	9	2,233
XIX. Minor wares, n.e.i.	2,133	2,994	212	288	160	41	5,828
Total	144,454	136,522	40,391	29,442	15,409	10,016	376,734

(*a*) Includes Class II. (*b*) Included in Class I.

The largest number employed in any particular class in the Commonwealth during 1919–20 was in Class VII., in which there were 89,424 employees, or 24 per cent. of the whole number. The class affording employment to the smallest number of hands was

Class XV., in which there were 495 hands, or 0.13 per cent. of the total number of employees. Classes VI., VII., and VIII. comprise those industries in which female labour is largely employed. (See § 6, 5 hereof.)

4. Classification of Numbers Employed in each State according to Nature of Employment.—In the following tables the average numbers of persons employed in each State during 1918–19 and 1919–20 are classified according to the nature of their employment:—

AVERAGE NUMBER OF PERSONS EMPLOYED IN EACH STATE, CLASSIFIED ACCORDING TO NATURE OF EMPLOYMENT, 1918–19.

State.	Average Number of Persons Employed.						
	Working Proprietors.	Managers and Overseers.	Accountants and Clerks.	Engine-drivers and Firemen.	Workers, Skilled & Unskilled, in Factory Mill or Workshop (a)	Carters, Messengers, and Others.	Total.
N.S. Wales, 1918–19	4,105	4,571	5,600	2,913	108,727	1,675	127,591
Victoria, 1918–19 ..	5,471	3,793	4,919	1,914	102,630	3,622	122,349
Queensland, 1918 ..	1,430	1,605	1,865	1,707	32,198	2,185	40,990
S. Australia, 1918–19	1,190	983	1,406	559	23,175	602	27,915
W. Australia, 1918	424	660	640	394	10,261	538	12,917
Tasmania, 1918 ..	372	407	481	295	6,887	271	8,713
Commonwealth	12,992	12,019	14,911	7,782	283,878	8,893	340,475

(a) Including outworkers.

AVERAGE NUMBER OF PERSONS EMPLOYED IN EACH STATE, CLASSIFIED ACCORDING TO NATURE OF EMPLOYMENT, 1919–20.

State.	Average Number of Persons Employed						
	Working Proprietors.	Managers and Overseers.	Accountants and Clerks.	Engine-drivers and Firemen.	Workers, Skilled & Unskilled in Factory Mill or Workshop (a)	Carters, Messengers, and Others.	Total.
N.S. Wales, 1919–20	4,461	4,911	6,319	3,058	123,730	1,975	144,454
Victoria, 1919–20 ..	5,898	4,130	5,602	2,144	114,768	3,980	136,522
Queensland, 1919 ..	1,402	1,691	1,941	1,789	31,721	2,347	40,891
S. Australia, 1919–20	1,283	1,012	1,543	588	24,486	530	29,442
W. Australia, 1919	445	770	677	460	12,483	574	15,409
Tasmania, 1919 ..	447	422	525	346	7,946	330	10,016
Commonwealth	13,936	12,936	16,607	8,385	315,134	9,736	376,734

(a) Including outworkers.

5. **Outworkers.**—The term "outworker" or "homeworker" has acquired a special meaning in connexion with manufacturing industries, and technically embraces only those to whom work is given out by factory owners to be wrought upon in the employees' own homes. Individuals working for themselves are not included. The following table gives particulars of the average number of outworkers connected with factories in each State during each year from 1915 to 1919-20 inclusive :—

NUMBER OF OUTWORKERS(a) CONNECTED WITH FACTORIES, 1915 TO 1919-20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1915	582*b*	1,473	92	44	6	70	2,267
1916(*c*)	577	1,473	99	44	6	35	2,234
1917(*d*)	677	1,814	89	41	5	32	2,658
1918(*d*)	637	1,406	30	25	4	20	2,122
1918–1919(*e*) ..	582	1,022	30	57	4	20	1,715
1919–1920(*e*) ..	733	1,492	19	50	8	28	2,330

(*a*) In all tables relating to number of hands employed in factories, outworkers are included.
(*b*) Year ended 30th June, 1915. (*c*) See note (*a*) first table this section.
(*d*) See note (*b*) first table this section. (*e*) See note (*c*) first table this section.

The Factories Acts in each State contain provisions regulating the employment of outworkers. Generally, records of out-work must be kept by factory proprietors, specifying the names and remuneration of workers, and stating the places where the work is done. Further particulars are given in a later part of this book. (See Section relating to *Industrial Unionism and Industrial Legislation.*)

§ 6. Sex Distribution in Factories.

1. ***Employment of Females in Factories.***—In all the States the employment of female labour in factories is now regulated by Act of Parliament. In Victoria the first Act dealing with the subject was passed in the year 1873, and provided that no female should be employed for more than eight hours a day without the permission of the Chief Secretary. The number of working hours for women is now limited to forty-eight per week in all the States, overtime being allowed only with the permission of the Departments, and then to a limited extent. The maximum periods of continuous labour, and the intervals of cessation therefrom, are also prescribed by the several Acts. Further reference is made to the restrictions regarding the employment of females in a later part of this book. (See Section relating to *Industrial Unionism and Industrial Legislation.*)

2. ***Distribution of Employees according to Sex.***—In New South Wales the ratio of the number of females employed in factories to the number of males during 1886 was about one to seven; in 1891 one to six; in 1903 it became about one to four; and is now slightly less than one to three. In Victoria the ratio of females to males during the year 1886 was about one to five. Five years later (1891) it was somewhat less, but in 1896 had increased to about one woman to three men, and at present is less than one to two. In South Australia the ratio at the latest date was one female employed to every four males, while Queensland and Western Australia were less than one to four, and Tasmania less than one to five. The ratio for the whole of the Commonwealth was more than one to three. The employment of women is, however, largely confined to a few trades.

The great prosperity in clothing and textile industries is one of the main causes of increase in female employment. Certain trades are specifically known as women's trades, such as clothing and textile trades, preparation of food, book-binding, and lighter work connected with the drug trade, as, for example, wrapping. In common also with commercial establishments, a considerable number of factories employ women as clerks and typists.

(i) *Average Number of Males and Females Employed, 1915 to 1919–20.* The following table shews the average number of male and female employees in factories in each State from 1915 to 1919–20 :—

AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN MANUFACTURING INDUSTRIES, 1915 TO 1919–20.

State.	1915.	1916.(*b*)	1917.(*c*)	1918.(*c*)	1918–19.(*d*)	1919–20.(*d*)
			MALES.			
New South Wales ..	90,409*a*	87,724	88,910	90,025	96,884	109,836
Victoria	75,971	75,971	74,924	76,654	81,357	92,101
Queensland	34,387	32,235	32,763	33,597	33,597	33,851
South Australia ..	20,772*a*	20,772	20,798	21,325	22,372	23,434
Western Australia ..	12,290	10,259	9,704	10,497	10,497	12,789
Tasmania	7,161	7,046	6,860	7,356	7,356	8,503
Commonwealth ..	240,990	234,007	233,959	239,454	252,063	280,514
			FEMALES.			
New South Wales ..	26,202*a*	28,677	29,087	30,529	30,707	34,618
Victoria	37,863	37,863	42,046	41,587	40,992	44,421
Queensland	7,692	7,748	7,683	7,393	7,393	7,040
South Australia ..	4,724	4,724	5,212	5,309	5,543	6,008
Western Australia ..	2,341	2,417	2,464	2,420	2,420	2,620
Tasmania	1,259	1,316	1,219	1,357	1,357	1,513
Commonwealth ..	80,081	82,745	87,711	88,595	88,412	96,220

(*a*) Year ended 30th June, 1915. (*b*) See note (*a*) first table this section.
(*c*) See note (*b*) first table this section. (*d*) See note (*c*) first table this section.

It will be seen that during the years specified there has been for the whole Commonwealth a total increase in the number of male employees of 39,524, or an annual average of 7,905, whilst the number of female employees has shewn a total increase of 16,139 or an annual average of 3,228.

(ii) *Average Number of Males and Females Employed per 10,000 of Mean Population, 1915 to 1919–20.* The following table shews the average number of male and female employees per 10,000 of the mean male and female population respectively in each State from 1915 to 1919–20 :—

AVERAGE NUMBER OF MALE AND FEMALE FACTORY EMPLOYEES PER 10,000 OF MEAN MALE AND FEMALE POPULATION RESPECTIVELY, 1915 TO 1919–20.

State.	1915.	1916.(*b*)	1917.(*c*)	1918.(*c*)	1918–19.(*d*)	1919–20.(*d*)
			MALES.			
New South Wales ..	935*a*	920	963	962	1,012	1,086
Victoria	1,077	1,077	1,125	1,142	1,188	1,243
Queensland	932	910	948	958	958	922
South Australia ..	960	960	1,030	1,059	1,087	1,043
Western Australia ..	696	615	612	658	658	752
Tasmania	702	706	690	717	717	784
Commonwealth ..	948	930	975	987	1,023	1,068

(*a*) Year ended 30th June, 1915. (*b*) See note (*a*) first table this section.
(*c*) See note (*b*) first table this section. (*d*) See note (*c*) first table this section.

AVERAGE NUMBER OF MALE AND FEMALE FACTORY EMPLOYEES PER 10,000 OF MEAN MALE AND FEMALE POPULATION RESPECTIVELY—*continued.*

State.	1915.	1916.(b)	1917.(c)	1918.(c)	1918–19.(d)	1919–20.(d)
			FEMALES.			
New South Wales ..	293a	313	311	320	316	349
Victoria	525	525	574	502	550	588
Queensland	242	239	234	219	219	204
South Australia ..	212	212	226	226	231	247
Western Australia ..	161	163	164	160	160	171
Tasmania	129	134	122	134	134	147
Commonwealth ..	333	340	354	351	347	371

(a) Year ended 30th June, 1915. (b) See note (a) first table this section.
(c) See note (b) first table this section. (d) See note (c) first table this section.

3. ***Rate of Variation for each Sex.***—The percentages of annual increase or decrease during the years 1915 to 1919–20 in the average number of males and females employed in manufacturing industries in the several States and the Commonwealth are shewn below :—

PERCENTAGE OF ANNUAL INCREASE IN NUMBERS OF MALE AND FEMALE EMPLOYEES, 1916 TO 1919–20.

State.	1915–16.(a)	1916–17.(b)	1917–18.(b)	1918—1918–19.(d)	1918–19—1919–20.(d)
			MALES.		
	%	%	%	%	%
New South Wales ..	– 2.97	1.35	1.25	7.62	13.37
Victoria ..	– 4.76	– 1.38	2.31	6.14	13.21
Queensland ..	– 6.26	1.64	2.55	c 2.55	0.76
South Australia ..	– 6.06	0.13	2.53	4.91	4.75
Western Australia ..	– 16.53	– 5.41	8.17	c 8.17	21.83
Tasmania ..	– 1.61	– 2.64	7.23	c 7.23	15.59
Commonwealth	– 2.90	– 0.02	2.35	5.27	11.29
			FEMALES.		
New South Wales ..	9.45	1.43	4.96	0.58	12.74
Victoria ..	– 1.98	11.06	– 1.09	– 1.43	6.37
Queensland ..	0.73	– 0.94	– 3.77	c – 3.77	– 4.77
South Australia ..	– 0.82	10.33	1.86	4.41	8.39
Western Australia ..	3.25	1.94	– 1.79	c – 1.79	8.26
Tasmania ..	4.55	– 7.37	11.32	c 11.32	11.60
Commonwealth	3.33	6.00	1.01	– 0.21	8.83

NOTE.—The minus sign (–) indicates decrease.
(a) See note (a) first table this section. (b) See note (b) first table this section.
(c) Twelve months ended 31st December, 1918. (d) See note (c) first table this section.

4. Ratio of Female Employment in Factories.—The extent to which females are employed in the factories of the Commonwealth may perhaps be best shewn by giving the masculinity of employees for each State for a series of years. The following table furnishes particulars for each of the years 1915 to 1919–20 inclusive :—

EXCESS OF MALES OVER FEMALES PER 100 OF BOTH SEXES COMBINED, 1915 TO 1919–20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1915	*55.1a*	*33.5*	*63.4*	*62.9*	*63.0*	*70.1*	*50.1*
1916(*b*)	50.7	33.5	61.2	62.9	61.9	68.5	47.8
1917(*c*)	50.7	28.1	62.0	59.9	59.5	69.8	45.5
1918(*c*)	49.4	29.7	63.9	60.1	62.5	68.9	46.0
1918–19(*d*) ..	51.9	33.0	63.9	60.3	62.5	68.9	48.1
1919–20(*d*) ..	52.1	34.9	65.6	59.2	66.0	69.8	48.9

(*a*) Year ended 30th June, 1915. (*b*) See note (*a*) first table this section. (*c*) See note (*b*) first table this section. (*d*) See note (*c*) first table this section.

The excess of males over females employed per 100 of both sexes combined has declined from 50.1 in 1915 to 48.9 in 1919–20, the decline being noticeable in all the States with the exception of Victoria and Queensland, which States shewed increases amounting to 4.18 and 3.47 per cent. respectively. The tables given in the succeeding paragraph shew that the comparatively high proportions of females have been due not so much to the incursion of female labour into what may be termed men's trades, as to the activity in those trades in which women are ordinarily engaged, more especially in dressmaking, millinery, etc.

5. Employment of Females in Particular Industries.—The employment of women in manufacturing industries in Australia is largely confined to a few trades, of which the more important are comprised in Classes VI., VII., and VIII., viz., in connexion with food, drink, etc., clothing and textile fabrics, and books, paper, printing, etc. The following tables shew the average number of females employed in each of these classes in each State during 1918–19 and 1919–20, and also shew the percentages of the average number so employed on the total average number of females employed in all classes of factories :—

AVERAGE NUMBER OF FEMALES EMPLOYED IN PARTICULAR INDUSTRIES, AND PERCENTAGES ON AVERAGE TOTAL EMPLOYED, 1918–19.

Class.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
			AVERAGE NUMBER.				
VI. Food, drink, etc.	5,178	5,405	956	615	332	294	12,780
VII. Clothing and textile fabrics ..	18,712	28,996	5,202	3,776	1,645	838	59,169
VIII. Books, paper, printing, etc. ..	2,857	2,667	681	557	247	108	7,117
All other classes	3,960	3,924	554	595	196	117	9,346
Total	30,707	40,992	7,393	5,543	2,420	1,357	88,412
			PERCENTAGES ON TOTAL AVERAGE FEMALE EMPLOYEES.				
VI. Food, drink, etc.	16·86	13·18	12·93	11·10	13·72	21·67	14·46
VII. Clothing and textile fabrics ..	60·94	70·74	70·37	68·12	67·97	61·75	66·92
VIII. Books, paper, printing, etc. ..	9·30	6·51	9·21	10·05	10·21	7·96	8·05
All other classes	12·90	9·57	7·49	10·73	8·10	8·62	10·57
Total	100·00	100·00	100·00	100·00	100·00	100·00	100·00

AVERAGE NUMBER OF FEMALES EMPLOYED IN PARTICULAR INDUSTRIES, AND PERCENTAGES ON AVERAGE TOTAL EMPLOYED, 1919-20.

Class.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919	Tas. 1919.	C'wealth.
AVERAGE NUMBER.							
VI. Food, drink, etc.	6,172	5,604	976	620	387	305	14,064
VII. Clothing and textile fabrics ..	20,888	31,849	4,839	4,036	1,771	966	64,349
VIII. Books, paper, printing, etc.	3,188	2,618	701	678	247	113	7,525
All other classes	4,390	4,350	524	674	215	129	10,282
Total	34,618	44,421	7,040	6,008	2,620	1,513	96,220
PERCENTAGES ON TOTAL AVERAGE FEMALE EMPLOYEES.							
VI. Food, drink, etc.	17·83	12·62	13·86	10·32	14·77	20·16	14·62
VII. Clothing and textile fabrics ..	60·34	71·70	68·74	67·18	67·59	63·84	66·88
VIII. Books, paper, printing, etc. ..	9·15	5·89	9·96	11·28	9·43	7·47	7·82
All other classes	12·68	9·79	7·44	11·22	8·21	8·53	10·68
Total	100·00	100·00	100·00	100·00	100·00	100·00	100·00

It will be seen that by far the greater part of the total number of females employed in factories work in one or other of the three classes of industry indicated, Class VII. being the most important. The classification of the employment of females in the several industries in that class, and the relation of their number to that of the males so employed, are shewn in the following tables :—

FEMALE EMPLOYMENT IN EACH INDUSTRY IN CLASS VII. DURING 1918-19.

Industry.	New South Wales. 1918–19.			Victoria. 1918–19.			Other States.(a)		
	Males.	Females	Femininity. (b)	Males.	Females	Femininity. (b)	Males.	Females	Femininity. (b)
Woollen and tweed mills	585	658	5.03	923	1,256	15.28	274	381	16.34
Boots and shoes ..	2,777	1,845	–20.16	5,313	3,648	–18.58	1,492	885	–25.54
Slop clothing / Clothing (tailoring)	2,456	6,997	48.04	1,980	7,015	55.98	1,710	4,855	47.91
Dressmaking and millinery	182	5,333	93.40	332	8,310	92.32	23	3,503	98.70
Dyeworks and cleaning	111	110	–0.45	107	106	–0.47	23	28	9.80
Furriers	67	78	7.59	91	218	41.10	..	..	..
Hats and caps ..	532	851	23.07	696	958	15.84	77	121	22.22
Waterproof and oilskin	58	195	54.15	57	156	46.98	..	..	..
Shirts, ties, and scarfs	150	1,638	83.22	325	5,163	88.16	79	1,371	89.10
Hosiery and knitted goods	160	612	58.55	174	1,424	78.22	..	..	..
Rope and cordage ..	283	22	–85.57	625	515	–9.65	180	198	4.76
Tents and tarpaulins ..	183	373	34.17	91	72	–11.66	108	90	–9.09
Other	..	..	..	29	153	68.13	9	29	52.63
Total, Class VII. ..	7,554	18,712	42.48	10,743	28,996	45.93	3,975	11,461	48.50

NOTE.—The minus sign (–) denotes excess of males over females.
(a) See note (c) first table this section. (b) Excess of females over males per 100 of both sexes combined.

FEMALE EMPLOYMENT IN EACH INDUSTRY IN CLASS VII. DURING 1919–20.

Industry.	New South Wales. 1919–20.			Victoria. 1919–20.			Other States.(a)		
	Males.	Females	Femininity. (b)	Males.	Females	Femininity. (b)	Males.	Females	Femininity. (b)
Woollen and tweed mills	733	728	–0.34	1,373	1,491	4.12	285	419	19.03
Boots and shoes ..	3,229	1,928	–25.23	6,094	4,263	–17.68	1,580	893	–32.79
Slop clothing / Clothing (tailoring)	2,536	7,461	49.26	2,099	7,223	54.97	1,719	5,152	49.96
Dressmaking and millinery	162	5,392	94.17	321	8,796	92.95	21	3,262	98.72
Dyeworks and cleaning	166	147	–6.07	145	145	..	37	36	–1.37
Furriers	82	136	24.77	110	260	40.54	2	2	..
Hats and caps ..	656	909	16.17	730	873	8.92	66	99	20.00
Waterproof and oilskin	43	131	50.57	47	153	53.00	6	12	33.33
Shirts, ties, and scarfs	222	2,784	85.23	359	5,600	88.07	90	1,467	88.44
Hosiery and knitted goods	180	905	66.82	297	2,146	75.68	..	..	..
Rope and cordage ..	354	29	84.86	668	524	–12.08	197	196	–0.03
Tents and tarpaulins ..	178	338	31.01	98	81	–9.50	126	51	–42.37
Other	..	..	..	55	234	61.94	9	23	43.75
Total, Class VII. ..	8,541	20,888	41.96	12,396	31,849	43.97	4,138	11,612	47.45

NOTE.—The minus sign (–) denotes excess of males over females.
(a) See note (c) first table this section. (b) Excess of females over males per 100 of both sexes combined.

§ 7. Child Labour in Factories.

1. **Conditions of Child Labour.**—The employment of young persons in factories in each State of the Commonwealth is regulated by Acts of Parliament in a similar manner to the employment of female labour. Excepting under special circumstances, children under a certain age may not be employed in factories. The minimum age in all the States is 14, with the exception of South Australia, where it is 13 years, and Victoria, where the minimum for females is 15 years. Other restrictions on the employment of young persons in factories are more particularly referred to in a later part of this book. (See Section relating to *Industrial Unionism and Industrial Legislation.*) The general object of the restrictions imposed is to assure that a proper period shall be devoted to primary education and that the early years of toil shall not exhaust the worker before the attainment of full growth.

2. ***Average Number of Children Employed in Factories, 1915 to 1919–20.***—In the statistical compilations of the various States the term "child" may be taken to denote any person under sixteen years of age. The following table shews the average number of children of each sex employed in manufacturing industries in each State during the years *1915 to 1919–20* :—

AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES, 1915 TO 1919–20.

State.	1915.	1916.(b)	1917.(c)	1918.(c)	1918–19.(d)	1919–20.(d)
			MALES.			
New South Wales ..	2,437a	2,578	2,604	2,584	2,586	3,824
Victoria	3,355	3,355	3,072	3,195	3,137	3,721
Queensland	1,247	1,197	1,170	1,171	1,171	1,214
South Australia ..	1,068	1,068	744	779	834	866
Western Australia ..	414	398	408	407	407	447
Tasmania	262	217	253	244	244	327
Commonwealth ..	8,783	8,813	8,251	8,380	8,379	10,399

(a) Year ended 30th June, 1915. (b) See note (a) first table this section.
(c) See note (b) first table this section. (d) See note (c) first table this section.

AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES, 1915 TO 1919–20—*continued.*

State.	1915.	1916.(b)	1917.(c)	1918.(c)	1918–19.(d)	1919–20.(d)
			FEMALES.			
New South Wales ..	2,326a	2,605	2,449	2,492	2,561	3,764
Victoria	2,197	2,197	2,301	2,447	2,389	2,872
Queensland	835	745	704	711	711	645
South Australia ..	591	591	586	567	545	765
Western Australia ..	311	271	314	307	307	307
Tasmania	97	102	89	105	105	186
Commonwealth ..	6,357	6,511	6,443	6,629	6,618	8,539
			TOTAL.			
New South Wales ..	4,763a	5,183	5,053	5,076	5,147	7,588
Victoria	5,552	5,552	5,373	5,642	5,526	6,593
Queensland	2,082	1,942	1,874	1,882	1,882	1,859
South Australia ..	1,659	1,659	1,330	1,346	1,370	1,631
Western Australia ..	725	669	722	714	714	754
Tasmania	359	319	342	349	349	513
Commonwealth ..	15,140	15,324	14,694	15,009	14,997	18,938

(a) Year ended 30th June, 1915. (b) See note (a) first table this section.
(c) See note (b) first table this section. (d) See note (c) first table this section.

3. **Percentage of Children on Total Persons Employed.**—The foregoing table shews a general increase in the number of children employed in factories during the past quinquennial period. This increase is more marked among the females than the males, the respective gains being 2,182 and 1,616. Examined in conjunction with the total number of persons employed, the following table reveals a gradual increase in the percentage of children employed in factories since 1915 :—

PERCENTAGE OF CHILDREN IN FACTORIES ON TOTAL NUMBER OF EMPLOYEES, 1915 TO 1919-20.

State.	1915.	1916.(b)	1917.(c)	1918.(c)	1918–19.(d)	1919–20.(d)
	%	%	%	%	%	%
New South Wales ..	4.08a	4.45	4.28	4.21	4.03	5.25
Victoria	4.88	4.88	4.69	4.77	4.52	4.83
Queensland	4.95	4.86	4.63	4.59	4.59	4.55
South Australia ..	6.51	6.51	5.11	5.05	4.94	5.54
Western Australia ..	4.96	5.28	5.93	5.53	5.53	4.89
Tasmania	4.26	3.81	4.23	4.01	4.01	5.12
Commonwealth ..	4.72	4.84	4.57	4.58	4.40	5.03

(a) Year ended 30th June, 1915. (b) See note (a) first table this section.
(c) See note (b) first table this section. (d) See note (c) first table this section.

4. **Industries Employing Child Labour.**—The employment of children is largely confined to a limited number of industries, the most important of which are specified in the tables below, which shew the average number of children of each sex employed in the several industries indicated in each State during 1918–19 and 1919–20.

NUMBER OF CHILDREN ENGAGED IN VARIOUS INDUSTRIES, 1918-19.

Class.	Industry.	N.S.W. 1918–19.		Victoria. 1918–19.		Q'land. 1918.		S. Aust. 1918–19.		W. Aust. 1918.		Tas. 1918.		C'wealth.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
III.	Bricks, tiles, pottery, and earthenware ..	114	..	82	8	6	1	11	..	11	..	9	..	233	9
IV.	Joinery, boxes, cases, etc.	84	1	77	..	38	2	18	..	10	1	7	..	234	4
,,	Saw mills	41	..	17	..	38	3	8	..	11	..	52	..	162	3
V.	Engineering, ironworks, and foundries ..	213	7	383	1	62	4	82	..	58	2	10	..	808	14
,,	Galvanised ironworking and tinsmithing	76	13	101	19	45	3	42	8	..	..	7	..	271	43
,,	Railway carriage, railway and tramway workshops ..	34	..	104	..	32	..	52	..	26	..	..	..	248	..
VI.	Meat & fish preserving	6	3	38	1	124	5	2	..	..	..	..	..	170	9
,,	Biscuits	154	166	79	52	10	18	9	11	33	36	18	4	303	257
,,	Confectionery ..	68	182	33	67	32	45	11	36	9	37	..	..	153	367
,,	Jams, pickles, sauces, etc.	13	9	44	34	23	15	24	10	2	..	22	10	128	67
,,	Tobacco, cigars, etc.	75	93	55	19	3	3	1	..	1	7	..	..	135	122
VII.	Woollen, cotton, and tweed mills ..	49	71	77	109	14	29	2	6	..	..	1	4	143	219
,,	Boots and shoes ..	158	205	262	347	40	55	29	43	9	10	14	23	512	683
,,	Clothing (tailoring and slop)	68	450	93	292	43	192	12	77	15	32	2	9	233	1,052
,,	Dressmaking and millinery	8	497	7	504	1	161	..	130	1	104	..	30	17	1,366
,,	Hats and caps ..	18	68	48	28	1	2	5	6	..	..	..	..	72	104
,,	Shirts, ties, scarfs, etc.	10	183	12	351	8	51	2	68	1	20	..	2	33	675
VIII.	Electrotyping, printing and binding ..	268	147	360	106	170	61	52	26	39	17	27	14	916	371
,,	Paper making, paper boxes, etc. ..	58	127	27	47	3	13	14	49	1	12	..	..	103	248
XI.	Coach and wagon building	67	1	89	..	42	..	18	..	8	..	14	..	228	1
,,	Cycles and motors ..	44	4	86	2	19	1	59	8	15	..	13	..	236	15
XIII.	Billiard tables, cabinet making and furniture	59	..	104	1	90	2	53	..	17	..	10	..	333	3
XIV.	Chemicals, drugs, and medicines ..	39	76	21	24	1	12	7	12	8	1	1	..	77	125

NUMBER OF CHILDREN ENGAGED IN VARIOUS INDUSTRIES, 1919–20.

Class.	Industry.	N.S.W. 1919–20.		Victoria. 1919–20.		Q'land. 1919.		S. Aust. 1919–20.		W. Aust. 1919.		Tas. 1919.		C'wealth.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
III.	Bricks, tiles, pottery, and earthenware ..	160	..	65	11	16	..	21	..	5	..	12	..	287	11
IV.	Joinery, boxes, cases, etc.	125	2	127	4	34	..	29	..	18	..	8	..	341	6
,,	Saw mills	79	4	22	..	61	4	5	..	14	1	30	..	211	9
V.	Engineering, ironworks, and foundries ..	343	16	412	3	45	1	87	..	60	1	19	..	966	21
,,	Galvanised ironworking and tinsmithing	128	14	151	24	68	1	49	12	..	..	6	1	402	52
,,	Railway carriage, railway and tramway workshops ..	87	..	115	..	15	..	2	..	11	..	2	..	232	..
VI.	Meat & fish preserving	4	9	17	..	111	1	..	..	1	..	..	..	133	10
,,	Biscuits	213	155	45	40	13	14	6	16	42	34	20	7	339	266
,,	Confectionery ..	74	165	28	65	24	65	20	43	15	36	1	6	162	380
,,	Jams, pickles, sauces, etc.	27	20	71	63	12	3	24	17	2	7	69	7	205	117
,,	Tobacco, cigars, etc.	57	114	100	15	2	..	4	1	4	11	..	..	167	141
VII.	Woollen, cotton, and tweed mills ..	86	79	174	159	42	7	9	14	..	..	5	2	316	261
,,	Boots and shoes ..	178	190	316	346	37	41	33	34	16	13	22	29	602	653
,,	Clothing (tailoring and slop)	124	707	90	366	46	173	16	166	12	55	7	54	295	1,521
,,	Dressmaking and millinery	12	854	9	610	1	148	..	177	..	88	1	48	23	1,725
,,	Hats and caps ..	66	134	41	18	..	3	2	3	..	..	..	1	109	159
,,	Shirts, ties, scarfs, etc.	15	420	17	374	6	85	4	91	2	25	..	6	44	1,001
VIII.	Electrotyping, printing and binding ..	453	276	383	146	211	47	73	31	49	14	25	14	1,194	528
,,	Paper making, paper boxes, etc. ..	68	158	31	64	4	16	13	78	1	2	..	..	117	317
XI.	Coach and wagon building	113	7	92	..	28	..	19	1	18	..	21	..	291	8
,,	Cycles and motors ..	90	2	168	1	24	..	85	1	13	..	18	..	338	4
XIII.	Billiard tables, cabinet making and furniture	130	4	227	4	77	1	56	..	17	..	8	..	516	9
XIV.	Chemicals, drugs, and medicine ..	31	86	[illegible]	37	..	11	5	18	6	4	..	..	56	186

5. **Apprenticeship.**—It is obvious that the age of apprenticeship in each State must be limited by the conditions governing the employment of child labour in factories. The early Apprentices Acts in some of the States are apparently in conflict on this point with the Factories Acts. The statutes limiting the age at which children may begin to work may be regarded as applicable by way of preventing too early apprenticeship, as may also those directing that education be continued up to a certain age or standard.

Indentures must be entered into specifying the conditions of the employment. Apprenticeships may not exceed seven years in duration, and usually become inoperative at twenty-one years of age, or in the case of women, on marriage. In Tasmania, however, the section of the Wages Boards Act 1920 which deals with apprentices provides for the issue of licenses by the Minister to enable persons to complete their term of apprenticeship after the age of twenty-one if necessary.

The Arbitration Courts and Wages Boards have power to limit the number of apprentices which may be taken into a factory and specify the term of apprenticeship. No general statistics of the number of apprentices in Australia have been collected up to the present time.

§ 8. Amount of Wages Paid and Value of Production.

1. **Introduction.**—The importance of the manufacturing industries of the Commonwealth is indicated by the fact that the total value of the output for 1919–20 was £292,536,608, of which amount the sum of £187,722,877 represents the value of the raw materials used. The difference between these two amounts, viz., £104,813,731, represents the amount by which the value of the raw materials was enhanced in the process of manufacture. The total amount of salaries and wages paid in factories during 1919–20 was £52,115,558.

2. **Amount of Salaries and Wages Paid.**—The total amounts of salaries and wages paid during the years 1918–19 and 1919–20 in various classes of factories in the Commonwealth (excluding all sums drawn by working proprietors) are shewn in the following tables:—

AMOUNT OF SALARIES AND WAGES PAID IN FACTORIES IN COMMONWEALTH, 1918–19.(a)

Class of Industry.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	606,507	571,915	106,326	111,466	40,290*b*	23,797*b*	1,460,301
II. Treating oils and fats, animal, vegetable, etc.	200,534	112,067	25,153	34,964	(*c*)	(*c*)	372,718
III. Processes in stone, clay, glass, etc. ..	951,803	612,200	102,008	195,557	52,764	24,908	1,939,240
IV. Working in wood ..	1,078,295	1,022,730	556,680	182,039	372,433	167,501	3,379,678
V. Metal works, machinery, etc. ..	4,563,495	2,334,987	829,964	1,391,921	409,806	216,984	9,747,157
VI. Connected with food and drink, etc. ..	2,312,954	2,392,764	2,083,282	519,635	264,937	191,989	7,765,561
VII. Clothing and textile fabrics, etc. ..	2,390,013	3,246,179	506,612	378,470	167,891	95,175	6,689,340
VIII. Books, paper, printing, and engraving ..	1,285,931	1,121,895	399,952	212,276	162,134	94,354	3,276,542
IX. Musical instruments, etc.	71,630	36,252	..	1,758	..	..	109,640
X. Arms and explosives	230,467	95,971	..	338	..	..	326,776
XI. Vehicles & fittings, saddlery & harness, etc.	574,476	543,181	136,200	199,518	65,154	39,568	1,558,097

(*a*) Excluding all amounts drawn by working proprietors. (*b*) Includes Class II. (*c*) Included in Class I.

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AMOUNT OF SALARIES AND WAGES PAID IN FACTORIES IN COMMONWEALTH, 1918-19(a)—*continued.*

Class of Industry.	N.S.W. 1918-19.	Victoria. 1918-19.	Q'land. 1918.	S. Aust. 1918-19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	£	£	£	£	£	£	£
XII. Ship and boat building and repairing ..	934,890	136,907	13,747	19,950	2,942	7,756	1,116,192
XIII. Furniture, bedding, and upholstery ..	484,280	327,169	140,333	101,807	56,838	28,766	1,139,193
XIV. *Drugs, chemicals, and by-products* ..	263,995	301,034	7,738	97,772	47,398	1,364	719,301
XV. Surgical & other scientific instruments ..	26,419	14,980	5,195	3,433	1,830	..	51,857
XVI. Jewellery, timepieces, and plated ware ..	116,112	136,982	14,032	20,309	7,342	3,235	298,012
XVII. Heat, light, and power	690,237	702,329	168,381	155,587	63,087	65,837	1,845,458
XVIII. Leatherware, n.e.i. ..	80,952	74,000	9,392	4,666	1,848	..	176,858
XIX. *Minor wares, n.e.i.* ..	178,929	296,861	16,193	25,249	14,202	2,740	534,174
Total ..	16,957,919	14,080,403	5,121,188	3,651,715	1,730,896	963,974	42,506,095

(a) Excluding all amounts drawn by working proprietors.

AMOUNT OF SALARIES AND WAGES PAID IN FACTORIES IN COMMONWEALTH, 1919-20.(a)

Class of Industry.	N.S.W. 1919-20.	Victoria. 1919-20.	Q'land. 1919.	S. Aust. 1919-20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	*789,131*	*797,141*	*108,170*	*165,988*	*(b)46,797*	*30,008*	*1,937,235*
II. Treating oils and fats, animal, vegetable, etc.	261,501	127,054	25,027	35,866	(c)	4,060	453,508
III. Processes in stone, clay, glass, etc.	1,310,044	681,187	102,444	242,842	70,788	28,152	2,435,457
IV. Working in wood ..	1,290,850	1,294,096	678,980	213,269	580,211	235,804	4,293,210
V. Metal works, machinery, etc. ..	5,832,961	3,007,455	1,020,909	1,204,054	419,966	291,403	11,776,768
VI. Connected with food and drink, etc. ..	2,711,367	2,085,804	1,854,560	507,633	375,697	226,317	8,751,468
VII. Clothing and textile fabrics, etc. ..	2,947,356	4,225,126	540,508	455,581	191,086	118,149	8,486,806
VIII. Books, paper, printing, and engraving	1,589,937	1,250,756	447,264	240,974	179,086	102,523	3,828,540
IX. Musical instruments, etc.	102,784	46,034	..	2,232	..	..	151,050
X. Arms and explosives	197,463	95,237	..	394	..	..	293,094
XI. Vehicles and fittings, saddlery and harness, etc. ..	690,613	689,290	144,843	260,533	81,021	49,073	1,935,373
XII. Ship and boat building and repairing	1,489,925	181,513	14,793	33,637	3,304	7,379	1,730,551
XIII. Furniture, bedding, and upholstery ..	620,344	448,214	158,138	191,870	74,415	42,656	1,484,637
XIV. Drugs, chemicals, and by-products ..	351,685	347,655	9,968	121,096	51,297	2,854	884,555
XV. Surgical and other scientific instruments ..	28,768	19,302	6,677	4,115	3,848	..	62,710
XVI. Jewellery, timepieces, and plated ware	145,466	178,209	16,477	28,241	6,841	3,577	382,811
XVII. Heat, light, & power	949,661	794,839	198,353	184,778	67,984	60,207	2,255,822
XVIII. Leatherware, n.e.i.	110,483	111,055	6,780	6,027	2,327	814	247,336
XIX. Minor wares, n.e.i. ..	242,887	413,116	19,979	29,032	16,682	2,961	724,627
Total ..	21,681,196	17,702,173	5,364,818	3,938,062	2,173,350	1,205,959	52,115,558

(a) Excluding all amounts drawn by working proprietors. (b) Includes Class II. (c) Included with Class I.

The maximum amount of salaries and wages paid in any particular class during 1919–20 was in Class V., the amount being £11,776,768, or 22.60 per cent. on the total amount; the minimum amount was in Class XV., £62,710, or 0.12 per cent. on the total amount. The State in which the largest amount was paid was New South Wales. The following statement shews the total amount of salaries and wages paid, and the average amount paid per employee in each State, during each of the years 1915 to 1919–20. The figures are exclusive of working proprietors and of the amounts drawn from the business by them.

AMOUNT OF SALARIES AND WAGES PAID AND AVERAGE AMOUNT PER ANNUM PAID PER EMPLOYEE, 1915 TO 1919–20.

Year.	Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
		£	£	£	£	£	£	£
1915a ..	Total amount paid ..	12,667,721	11,036,345	4,226,635	2,705,130	1,791,276	788,547	33,210,654
	Average per employee	112.94	101.75	104.21	111.54	127.31	97.82	108.00
1916b ..	Total amount paid ..	13,413,845	11,036,345	4,181,254	2,705,130	1,656,799	835,467	33,828,840
	Average per employee	119.29	101.75	108.13	111.54	136.29	104.88	111.35
1917c ..	Total amount paid ..	14,381,309	11,833,517	4,879,940	3,094,094	1,590,696	838,662	36,618,218
	Average per employee	126.16	105.87	125.28	124.57	136.22	108.97	118.54
1918c ..	Total amount paid ..	14,701,255	12,502,601	5,121,188	3,359,354	1,730,896	963,974	38,379,268
	Average per employee	126.18	110.77	129.45	131.94	138.55	115.57	121.75
1918–19d	Total amount paid ..	16,957,919	14,080,403	5,121,188	3,651,715	1,730,896	963,974	42,506,095
	Average per employee	137.33	120.47	129.45	136.64	138.55	115.57	129.80
1919–20d	Total amount paid ..	21,681,196	17,702,173	5,364,818	3,988,062	2,173,350	1,205,950	52,115,558
	Average per employee	154.87	135.52	135.86	141.63	145.24	126.03	143.65

(a) New South Wales figures for year ended 30th June, 1915. (b) See note (a) first table this section. (c) See note (b) first table this section. (d) See note (c) first table this section.

In comparing the figures in the preceding table, regard should be paid to the nature of certain industries which are carried on to a greater extent in some States than in others. In Victoria, for instance, there is a large number of hands employed in Class VII., comprising a heavy percentage of women and children. New South Wales pays the argeat amount in salaries, and the average per employee in that State is considerably higher than in any other part of the Commonwealth.

It will be noted that there has been a persistent increase in the average wage paid per employee in each of the States during the period under review. Taking the Commonwealth as a whole, during the period 1915–1919–20 there has been an increase of 57 per cent. on the total amount of wages paid, and 33 per cent. on the average paid per employee.

The following tables shew the approximate amount paid in salaries and wages to males and females in each class of industry in each State during 1918–19 and 1919–20, and the total amounts paid to employees of each sex during the last six years:—

AMOUNT(a) OF SALARIES AND WAGES PAID TO MALE AND FEMALE HANDS EMPLOYED IN EACH CLASS OF INDUSTRY IN THE SEVERAL STATES OF THE COMMONWEALTH DURING 1918-19.

Class of Industry.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
MALES.							
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	599,183	569,669	105,757	110,914	39,843b	23,526b	1,448,892
II. Treating oils and fats, animal, vegetable, etc.	180,738	102,350	24,184	32,949	(c)	(c)	340,221
III. Processes in stone, clay, glass, etc. ..	944,465	605,432	101,358	194,759	52,281	24,758	1,923,053
IV. Working in wood ..	1,066,915	1,014,263	551,834	179,529	372,094	166,275	3,350,910
V. Metal works, machinery, etc. ..	4,521,055	2,308,762	823,925	1,385,270	407,420	215,882	9,662,314

(a) Exclusive of amount drawn by working proprietors. (b) Includes Class II. (c) Included in Class I.

AMOUNT(a) OF SALARIES AND WAGES PAID TO MALE AND FEMALE HANDS EMPLOYED IN EACH CLASS OF INDUSTRY, ETC.—*continued.*

Class of Industry.	N.S.W. 1918-19.	Victoria. 1918-19.	Q'land. 1918.	S. Aust. 1918-19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
MALES—*continued.*							
	£	£	£	£	£	£	£
VI. *Connected with food and drink, etc.* ..	1,981,379	2,061,548	2,026,703	488,104	248,335	176,524	6,982,593
VII. Clothing and textile fabrics, etc. ..	1,073,912	1,460,493	230,996	162,910	60,646	52,447	3,041,404
VIII. Books, paper, printing and engraving ..	1,109,968	954,340	357,505	183,746	146,775	88,603	2,840,937
IX. Musical instruments, etc.	68,658	35,270	..	1,758	..	..	105,695
X. *Arms and explosives*	230,041	70,503	..	338	..	..	300,882
XI. Vehicles and fittings, saddlery and harness, etc.	560,327	529,612	131,255	193,634	62,826	38,226	1,515,880
XII. Ship and boat building and repairing ..	932,813	136,520	13,747	19,950	2,942	7,756	1,113,728
XIII. Furniture, bedding, and upholstery ..	452,562	304,844	132,613	98,992	55,107	27,219	1,071,337
XIV. Drugs, chemicals, and by-products ..	212,661	264,908	5,420	92,123	44,319	1,137	620,568
XV. Surgical and other scientific instruments	22,775	14,121	4,993	3,140	1,449	..	46,478
XVI. Jewellery, timepieces, and plated ware ..	107,447	126,289	13,159	19,375	7,148	3,157	276,575
XVII. Heat, light, and power	685,305	667,404	165,867	150,707	63,087	64,761	1,797,131
XVIII. Leatherware, n.e.i. ..	70,942	57,962	7,513	3,834	1,518	..	141,769
XIX. Minor wares, n.e.i. ..	145,523	247,367	13,888	22,591	12,810	2,472	444,651
Total ..	14,966,669	11,531,606	4,710,717	3,344,023	1,578,600	892,743	37,025,018
FEMALES.							
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	7,324	2,246	569	552	447*b*	271*b*	11,409
II. Treating oils and fats, *animal, vegetable,* etc.	19,796	9,717	969	2,015	(c)	(c)	32,497
III. Processes in stone, clay, glass, etc. ..	7,338	6,768	650	798	483	150	16,187
IV. *Working in wood* ..	11,380	8,467	4,846	2,510	339	1,226	28,768
V. Metal works, machinery, etc... ..	42,440	26,225	6,039	6,651	2,386	1,102	84,843
VI. Connected with food and drink, etc. ..	331,575	331,216	56,579	31,531	16,602	15,465	782,968
VII. Clothing and textile fabrics, etc. ..	1,226,101	1,785,686	275,616	210,560	107,245	42,728	3,647,936
VIII. Books, paper, printing and engraving ..	175,963	167,555	42,447	28,530	15,359	5,751	435,605
IX. Musical instruments, etc.	2,972	973	..	..	..	..	3,945
X. Arms and explosives	426	25,468	..	..	..	..	25,894
XI. Vehicles and fittings, saddlery and harness, etc. ..	14,149	13,569	4,945	5,884	2,328	1,342	42,217
XII. Ship and boat building and repairing ..	2,077	387	..	..	..	..	2,464
XIII. Furniture, bedding, and upholstery ..	31,718	22,325	7,720	2,816	1,731	1,547	67,856
XIV. Drugs, chemicals, and by-products ..	51,334	36,126	2,318	5,649	3,079	227	98,733
XV. Surgical and other scientific instruments	3,644	859	202	293	381	..	5,379
XVI. Jewellery, timepieces, and plated ware ..	8,665	10,693	873	934	194	78	21,437
XVII. Heat, light, and power	4,932	34,925	2,514	4,880	..	1,076	48,327
XVIII. Leatherware, n.e.i. ..	16,010	16,038	1,879	832	330	..	35,089
XIX. Minor wares, n.e.i. ..	33,406	49,494	2,305	2,658	1,392	268	89,523
Total ..	1,991,250	2,548,737	410,471	307,092	152,296	71,231	5,481,077

(a) Exclusive of amount drawn by working proprietors. (b) Includes Class II. (c) Included in Class I.

AMOUNT(a) OF SALARIES AND WAGES PAID TO MALE AND FEMALE HANDS EMPLOYED IN EACH CLASS OF INDUSTRY IN THE SEVERAL STATES OF THE COMMONWEALTH DURING 1919–20.

Class of Industry.	N.S.W., 1919–20.	Victoria, 1919–20.	Q'land., 1919.	S. Aust., 1919–20.	W. Aust., 1919.	Tas., 1919.	C'wealth.
MALES.							
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	775,743	794,406	107,497	165,100	46,343b	30,008	1,919,167
II. Treating oils and fats, animal, vegetable, etc.	233,871	114,633	24,138	33,669	(c)	3,665	409,976
III. Processes in stone, clay, glass, etc. ..	1,300,778	673,880	101,741	241,898	70,046	27,931	2,416,274
IV. Working in wood ..	1,277,034	1,282,556	673,272	210,720	579,718	234,686	4,257,995
V. Metal works, machinery, etc. ..	5,780,707	2,974,768	1,013,293	1,196,581	417,001	290,011	11,672,961
VI. Connected with food and drink, etc. ..	2,288,555	2,598,338	1,794,752	562,181	355,334	208,500	7,807,660
VII. Clothing and textile fabrics, etc. ..	1,371,893	1,899,615	246,189	185,755	71,870	61,858	3,837,180
VIII. Books, paper, printing and engraving ..	1,364,366	1,072,020	396,245	214,433	100,399	95,777	3,303,240
IX. Musical instruments, etc.	99,030	44,733	..	2,232	..	..	145,995
X. Arms and explosives	197,092	72,177	..	394	..	..	269,663
XI. Vehicles and fittings, saddlery and harness, etc. ..	672,707	675,597	138,371	272,877	78,431	47,114	1,885,097
XII. Ship and boat building and repairing..	1,486,686	181,111	14,793	33,637	3,304	7,379	1,726,910
XIII. Furniture, bedding, and upholstery ..	591,068	424,183	151,209	128,481	72,534	40,969	1,408,444
XIV. Drugs, chemicals, and by-products ..	285,520	297,762	6,471	115,194	48,094	2,690	755,731
XV. Surgical and other scientific instruments	*25,150*	*18,228*	*6,514*	*3,871*	*3,354*	..	*57,117*
XVI. Jewellery, timepieces, and plated ware ..	135,620	165,137	17,088	27,060	8,660	3,544	357,109
XVII. Heat, light, and power	944,361	759,399	195,227	179,426	67,965	59,100	2,205,478
XVIII. Leatherware, n.e.i. ..	92,694	83,713	5,479	5,033	1,821	746	189,486
XIX. Minor wares, n.e.i. ..	205,473	350,820	17,446	26,629	14,991	2,701	618,060
Total ..	19,128,348	14,483,166	4,909,725	3,605,180	2,000,474	1,116,679	45,243,572
FEMALES.							
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	13,388	2,645	673	888	454b	..	18,048
II. Treating oils and fats, animal, vegetable, etc.	27,630	12,421	889	2,197	(c)	395	43,532
III. Processes in stone, clay, glass, etc. ..	9,266	7,307	703	944	742	221	19,183
IV. Working in wood ..	13,816	11,540	5,708	2,540	493	1,118	35,215
V. Metal works, machinery, etc. ..	52,274	32,687	7,616	7,473	2,365	1,392	103,807
VI. Connected with food and drink, etc. ..	422,812	387,556	59,808	35,452	20,363	17,817	943,808
VII. Clothing and textile fabrics, etc. ..	1,575,463	2,325,511	303,319	269,826	119,207	56,291	4,649,617
VIII. Books, paper, printing and engraving ..	225,571	187,736	51,019	35,541	18,687	6,746	525,300
IX. Musical instruments, etc.	3,754	1,301	..	..	..	..	5,055
X. Arms and explosives	371	23,060	..	..	..	..	23,431
XI. Vehicles and fittings, saddlery and harness, etc. ..	17,906	13,693	6,472	7,656	2,590	1,959	50,276
XII. Ship and boat building and repairing..	3,239	402	..	..	..	..	3,641
XIII. Furniture, bedding, and uphostery ..	38,276	24,031	6,927	3,389	1,881	1,689	76,193

(a) Exclusive of amount drawn by working proprietors. (b) Includes Class II. (c) Included in Class I.

AMOUNT(a) OF SALARIES AND WAGES PAID TO MALE AND FEMALE HANDS EMPLOYED IN EACH CLASS OF INDUSTRY, ETC.—*continued*.

Class of Industry.	N.S.W., 1919–20.	Victoria, 1919–20.	Q'land., 1919.	S. Aust., 1919–20.	W. Aust., 1919.	Tas., 1919.	C'wealth.
			FEMALES—*continued*.				
	£	£	£	£	£	£	£
XIV. Drugs, chemicals, and by-products ..	66,165	49,893	3,497	5,902	3,203	164	128,824
XV. Surgical and other scientific instruments	3,618	1,074	163	244	494	..	5,593
XVI. Jewellery, timepieces, and plated ware ..	9,846	13,072	1,389	1,181	181	33	25,702
XVII. Heat, light, and power	5,300	35,440	3,126	5,352	19	1,107	50,344
XVIII. Leatherware, n.e.i. ..	26,789	27,342	1,251	1,894	506	68	57,850
XIX. Minor wares, n.e.i. ..	37,364	62,296	2,533	2,403	1,691	280	106,567
Total ..	2,552,848	3,219,007	455,093	382,882	172,876	89,280	6,871,986

(a) Exclusive of amount drawn by working proprietors.

AMOUNT(a) OF SALARIES AND WAGES PAID TO MALES AND FEMALES IN FACTORIES IN THE SEVERAL STATES OF THE COMMONWEALTH, 1915 TO 1919–20.

	Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
				MALES.				
1915.b	Amount paid ..£	11,296,572	9,161,852	3,886,165	2,506,579	1,667,477	723,010	29,241,655
	Per cent. on total ..	89.18	83.02	91.94	92.66	93.09	92.27	88.05
	Average per employee£	130.96	128.76	118.03	122.92	141.93	106.97	128.01
1916.c	Amount paid ..£	11,888,028	9,161,852	3,823,488	2,506,579	1,520,760	772,789	29,673,496
	Per cent. on total ..	88.63	83.02	91.44	92.66	91.79	92.50	87.72
	Average per employee£	141.46	128.76	123.57	122.92	155.80	116.10	133.66
1917.d	Amount paid ..£	12,727,172	9,590,851	4,496,449	2,852,334	1,449,780	778,353	31,894,939
	Per cent. on total ..	88.50	81.05	92.14	92.19	91.14	92.81	87.10
	Average per employee£	149.35	136.48	143.51	144.99	156.99	120.13	143.53
1918.d	Amount paid ..£	12,848,017	10,141,750	4,710,717	3,087,063	1,578,600	892,743	33,258,890
	Per cent. on total ..	87.39	81.12	91.98	91.89	91.20	92.61	86.66
	Average per employee£	148.93	141.12	146.19	152.89	156.41	127.75	146.11
1918–19.e	Amount paid ..£	14,966,669	11,531,666	4,710,717	3,344,623	1,578,600	892,743	37,025,018
	Per cent. on total ..	88·26	81·90	91·98	91·59	91·20	92·61	87·11
	Average per employee£	160·82	150·89	146·19	157·55	156·41	127·75	154·25
1919–20.e	Amount paid ..£	19,128,348	14,483,166	4,909,725	3,605,180	2,000,474	1,116,679	45,243,572
	Per cent. on total ..	88·23	81·82	91·52	90·40	92·05	92·60	86·81
	Average per employee£	181·06	166·98	151·09	162·43	161·84	138·51	169·14
				FEMALES.				
1915.b	Amount paid ..£	1,371,149	1,874,493	340,470	198,551	123,799	60,537	3,968,999
	Per cent. on total ..	10.82	16.98	8.06	7.34	6.91	7.73	11.95
	Average per employee£	52.94	50.24	44.62	42.47	53.34	48.39	50.18
1916.c	Amount paid ..£	1,525,817	1,874,493	357,766	198,551	136,039	62,678	4,155,344
	Per cent. on total ..	11.37	16.98	8.56	7.34	8.21	7.50	12.28
	Average per employee£	53.72	50.24	46.29	42.47	56.80	47.85	50.81
1917.d	Amount paid ..£	1,654,137	2,242,666	383,491	241,760	140,916	60,309	4,723,279
	Per cent. on total ..	11.50	18.95	7.86	7.81	8.86	7.19	12.90
	Average per employee£	57.49	54.05	50.31	46.81	57.71	49.56	54.47
1918.d	Amount paid ..£	1,853,238	2,360,851	410,471	272,291	152,296	71,231	5,120,378
	Per cent. on total ..	12.61	18.88	8.02	8.11	8.80	7.39	13.34
	Average per employee£	61.27	57.57	55.95	51.67	63.46	52.65	58.45
1919–20.e	Amount paid ..£	1,991,250	2,548,737	410,471	307,092	152,296	71,231	5,481,077
	Per cent. on total ..	11·74	18·10	8·02	8·41	8·80	7·39	12·89
	Average per employee£	65·46	63·00	55·95	55·88	63·46	52·65	62·67
1919–20.e	Amount paid ..£	2,552,848	3,219,007	455,093	382,882	172,876	89,280	6,871,986
	Per cent. on total ..	11·77	18·18	8·48	9·60	7·95	7·40	13·19
	Average per employee£	74·83	73·35	65·07	64·20	66·41	59·24	72·11

(a) Exclusive of amounts drawn by working proprietors. (b) Year ended 30th June, 1915, for New South Wales. (c) See note (a) first table this section. (d) See note (b) first table this section. (e) See note (c) first table this section.

A further analysis of salaries and wages paid is given in the following tables, the amounts paid to managers, overseers, etc., being differentiated from those paid to other employees. As previously mentioned, amounts drawn by working proprietors are excluded in all cases.

DETAILS OF SALARIES AND WAGES PAID TO MANAGERS, OVERSEERS, ETC., AND OTHER EMPLOYEES IN FACTORIES DURING 1918–19.(a)

Class of Industry.	Salaries and Wages Paid to—						
	Managers, Overseers, Accountants, and Clerks.		All Other Employees.		All Employees.		
	Males.	Females.	Males.	Females.	Males.	Females.	Total.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	177,079	4,671	1,271,813	6,738	1,448,892	11,409	1,460,301
II. Treating oils and fats, animal, vegetable, etc.	64,874	6,366	275,347	26,131	340,221	32,497	372,718
III. Processes in stone, clay, glass, etc. ..	201,695	8,186	1,721,358	8,001	1,923,053	16,187	1,939,240
IV. Working in wood ..	405,743	24,554	2,945,167	4,214	3,350,910	28,768	3,379,678
V. Metal works, machinery, etc. ..	1,037,863	46,801	8,624,451	38,042	9,662,314	84,843	9,747,157
VI. Connected with food and drink, etc. ..	1,246,186	96,109	5,736,407	686,859	6,982,593	782,968	7,765,561
VII. Clothing and textile fabrics, etc. ..	479,118	206,212	2,562,286	3,441,724	3,041,404	3,647,936	6,689,340
VIII. Books, paper, printing, and engraving ..	568,288	80,120	2,272,649	355,485	2,840,937	435,605	3,276,542
IX. Musical instruments, etc.	8,649	1,994	97,046	1,951	105,695	3,945	109,640
X. Arms and explosives	26,591	2,569	274,291	23,325	300,882	25,894	326,776
XI. Vehicles and fittings, saddlery and harness, etc. ..	160,663	25,084	1,355,217	17,133	1,515,880	42,217	1,558,097
XII. Ship and boat building and repairing ..	89,484	2,204	1,024,244	200	1,113,728	2,404	1,116,192
XIII. Furniture, bedding, and upholstery ..	87,448	13,967	983,889	53,889	1,071,337	67,856	1,139,193
XIV. Drugs, chemicals, and by-products ..	128,853	16,450	491,715	82,283	620,568	98,733	719,301
XV. Surgical & other scientific instruments ..	7,442	1,609	39,036	3,770	46,478	5,379	51,857
XVI. Jewellery, timepieces, and plated ware ..	25,166	6,135	251,409	15,302	276,575	21,437	298,012
XVII. Heat, light, and power	358,989	21,789	1,438,142	26,538	1,797,131	48,327	1,845,458
XVIII. Leatherware, n.e.i. ..	22,545	3,721	119,224	31,368	141,769	35,089	176,858
XIX. Minor wares, n.e.i. ..	58,677	6,632	385,974	82,891	444,651	89,523	534,174
Total	5,155,353	575,233	31,869,665	4,905,844	37,025,018	5,481,077	42,506,095
Average paid per employee ..	244·54	98·36	145·56	60·11	154·25	62·67	129·80

(a) See note (c) first table this section.

DETAILS OF SALARIES AND WAGES PAID TO MANAGERS, OVERSEERS, ETC., AND OTHER EMPLOYEES IN FACTORIES DURING 1919–20.(a)

Class of Industry.	Salaries and Wages Paid to—						
	Managers, Overseers, Accountants, and Clerks.		All Other Employees.		All Employees.		
	Males.	Females.	Males.	Females.	Males.	Females.	Total.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	223,421	6,766	1,695,766	11,282	1,919,187	18,048	1,937,235
II. Treating oils and fats, animal, vegetable, etc.	88,129	10,122	321,847	33,410	409,976	43,532	453,508
III. Processes in stone, clay, glass, etc. ..	242,367	10,762	2,173,907	8,421	2,416,274	19,183	2,435,457
IV. Working in wood ..	492,434	28,213	3,765,561	7,002	4,257,995	35,215	4,293,210
V. Metal works, machinery, etc. ..	1,224,422	57,106	10,448,539	46,701	11,672,961	103,807	11,776,768
VI. Connected with food and drink, etc. ..	1,393,365	111,397	6,414,295	832,411	7,807,660	943,808	8,751,468
VII. Clothing and textile fabrics, etc. ..	592,045	265,513	3,245,144	4,384,104	3,837,189	4,649,617	8,486,806
VIII. Books, paper, printing, and engraving ..	680,712	92,955	2,672,528	432,345	3,303,240	525,300	3,828,540
IX. Musical instruments, etc.	14,375	2,651	131,620	2,404	145,995	5,055	151,050
X. Arms and explosives	32,825	2,723	236,838	20,708	269,663	23,431	293,094

(a) See note (c) first table this section.

DETAILS OF SALARIES AND WAGES PAID TO MANAGERS, OVERSEERS, ETC., AND OTHER EMPLOYEES IN FACTORIES, ETC.(a)—*continued.*

Class of Industry.	Salaries and Wages Paid to—						
	Managers, Overseers, Accountants, and Clerks.		All Other Employees.		All Employees.		
	Males.	Females.	Males.	Females.	Males.	Females.	Total.
	£	£	£	£	£	£	£
XI. Vehicles and fittings, saddlery and harness, etc. ..	201,984	30,750	1,683,113	19,526	1,885,097	50,276	1,935,373
XII. Ship and boat building and repairing ..	108,889	3,111	1,618,021	530	1,726,910	3,641	1,730,551
XIII. Furniture, bedding, and upholstery ..	105,154	14,212	1,303,290	61,981	1,408,444	76,193	1,484,637
XIV. Drugs, chemicals, and by-products ..	173,908	19,872	581,823	108,952	755,731	128,824	884,555
XV. Surgical & other scientific instruments ..	10,015	1,541	47,102	4,052	57,117	5,593	62,710
XVI. Jewellery, timepieces, and plated ware ..	28,763	7,922	328,346	17,780	357,109	25,702	382,811
XVII. Heat, light, and power	436,714	25,771	1,768,764	24,573	2,205,478	50,344	2,255,822
XVIII. Leatherware, n.e.i. ..	27,665	4,927	161,821	52,923	189,486	57,850	247,336
XIX. Minor wares, n.e.i. ..	82,580	7,899	535,480	98,668	618,060	106,567	724,627
Total ..	6,109,767	704,213	39,133,805	6,167,773	45,243,572	6,871,986	52,115,558
Average paid per employee ..	264·77	108·89	160·11	69·43	169·14	72·11	143·65

(a) See note (c) first table this section.

3. Value of Fuel and Light used in Factories.—The amount expended in factories on fuel and light is of considerable importance; in 1919–20 it amounted to £5,141,293. The classes of industry in which fuel was most extensively used were Class V., Metal Works, Machinery, etc., £1,385,545; Class VI., Connected with Food, Drink, etc., £1,190,521; Class XVII., Heat, Light, Power, etc., £1,005,826, of which amount £898,954 was expended on generating electric light and power; and Class III., £570,078. The following tables shew the value of fuel and light used in the different classes of industry in the several States of the Commonwealth during 1918–19 and 1919–20, and of the total used for each of the last six years:—

VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH, 1918–19.

Class of Industry.	N.S.W. 1918–19.	Vic. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	87,100	79,368	14,984	16,000	4,633a	1,520a	203,614
II. Treating oils and fats, animal, vegetable, etc.	45,044	31,348	4,245	6,237	(b)	(b)	86,874
III. Processes in stone, clay, glass, etc. ..	273,114	183,408	20,805	69,584	16,602	6,565	570,078
IV. Working in wood ..	36,488	27,961	12,181	6,301	2,787	1,870	87,588
V. Metal works, machinery, etc.	755,560	211,628	83,471	302,217	27,329	55,340	1,385,545
VI. Connected with food and drink, etc. ..	355,604	402,593	249,853	112,606	52,239	17,626	1,190,521
VII. Clothing and textile fabrics, etc. ..	58,548	109,881	10,398	11,734	3,876	2,105	196,542
VIII. Books, paper, printing, and engraving ..	48,465	60,561	16,736	9,019	5,908	2,203	142,892
IX. Musical instruments, etc.	1,292	726	..	26	..	..	2,044
X. Arms and explosives ..	2,931	10,788	..	14	..	..	13,733
XI. Vehicles and fittings, saddlery and harness, etc.	19,154	17,759	3,080	8,217	3,187	844	52,241
XII. Ship and boat building and repairing ..	21,700	5,530	211	638	17	105	28,201
XIII. Furniture, bedding, and upholstery ..	13,899	9,879	3,828	3,379	1,746	601	33,332
XIV. Drugs, chemicals, and by-products ..	19,422	33,120	610	12,679	4,949	50	70,830
XV. Surgical and other scientific instruments	545	647	197	193	90	..	1,672
XVI. Jewellery, timepieces, and plated ware ..	2,567	3,900	596	1,068	179	45	8,355
XVII. Heat, light, and power	547,934	217,015	52,526	84,023	87,861	16,477	1,005,836
XVIII. Leatherware, n.e.i. ..	1,771	2,120	165	132	73	..	4,261
XIX. Minor wares, n.e.i. ..	6,994	48,892	213	620	474	41	57,144
Total	2,296,041	1,457,124	424,099	644,687	211,959	105,392	5,141,293

(a) Includes Class II. (b) Included in Class I.

VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH, 1919-20.

Class of Industry.	N.S.W. 1919–20.	Vic. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	105,978	109,359	17,005	22,665	*a*6,666	1,467	263,140
II. Treating oils and fats, animal, vegetable, etc.	62,347	42,526	4,913	4,514	(*b*)	471	114,771
III. Processes in stone, clay, glass, etc. ..	360,561	206,884	18,035	90,470	20,143	7,910	704,003
IV. Working in wood ..	45,409	30,439	12,012	6,741	4,317	3,279	102,191
V. Metal works, machinery, etc.	974,938	212,945	143,065	137,801	24,987	44,907	1,538,823
VI. Connected with food and drink, etc. ..	410,597	469,052	234,444	116,789	63,039	25,157	1,319,078
VII. Clothing and textile fabrics, etc. ..	68,944	161,399	11,589	13,346	4,029	3,514	262,821
VIII. Books, paper, printing, and engraving ..	56,799	64,193	18,951	9,453	6,230	2,760	158,386
IX. Musical instruments, etc.	1,538	909	..	44	..	..	2,491
X. Arms and explosives ..	2,063	9,653	..	8	..	..	11,724
XI. Vehicles and fittings, saddlery and harness, etc.	18,385	21,005	3,382	10,321	3,517	1,800	58,410
XII. Ship and boat building and repairing ..	34,270	7,342	324	4,887	31	91	46,945
XIII. Furniture, bedding, and upholstery ..	13,601	12,409	4,450	4,599	2,328	1,075	38,471
XIV. Drugs, chemicals, and by-products ..	24,096	35,777	780	17,565	5,979	251	84,448
XV. Surgical and other scientific instruments	618	568	203	242	156	..	1,787
XVI. Jewellery, timepieces, and plated ware ..	2,836	5,437	614	1,315	221	69	10,492
XVII. Heat, light, and power	515,391	279,794	61,370	117,066	80,231	19,653	1,073,505
XVIII. Leatherware, n.e.i. ..	1,551	3,215	118	68	79	12	5,043
XIX. Minor wares, n.e.i. ..	10,744	50,314	348	816	381	49	62,654
Total ..	*2,710,666*	*1,723,220*	*531,612*	*558,802*	*222,334*	*112,555*	*5,859,189*

(*a*) Includes Class II. (*b*) Included in Class I.

VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1915 TO 1919-20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1915	1,364,186*a*	834,966	300,716	399,731	187,121	110,803	3,197,523
1916*b*	1,528,220	834,966	310,454	399,731	193,523	116,704	3,383,598
1917*c*	1,766,664	1,024,156	415,052	558,624	198,000	92,544	4,054,940
1918*c*	2,060,076	1,248,186	424,099	683,187	211,950	105,392	4,732,890
1918–19*d* ..	2,298,041	1,457,124	424;099	644,687	211,950	105,392	5,141,293
1919–20*d* ..	2,710,666	1,723,220	531,612	558,802	222,334	112,555	5,859,189

(*a*) Year ended 30th June, 1915. (*b*) See note (*a*) first table this section.
(*c*) See note (*b*) first table this section. (*d*) See note (*c*) first table this section.

4. Value of Raw Materials used in Factories.—The total value of raw materials worked up (*i.e.*, exclusive of fuel, lubricants, etc.) in factories in the Commonwealth during 1919-20 was £187,722,877, which represents 64.17 per cent. of the total value of the finished products. (See next paragraph.) The following tables show the value of the raw materials worked up in various classes of industry in each State.

VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH, 1918–19.

Class of Industry.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	7,984,944	6,479,059	2,477,075	975,735	a359,642	a277,758	18,554,213
II. Treating oils and fats, animal, vegetable, etc.	2,410,007	806,412	142,051	228,807	(b)	(b)	3,587,277
III. Processes in stone, clay, glass, etc. ..	740,630	357,474	54,180	136,063	20,209	9,749	1,319,205
IV. Working in wood ..	2,955,548	1,452,602	866,612	614,460	117,957	103,343	6,110,522
V. Metal works, machinery, etc. ..	15,926,577	3,752,620	867,706	4,970,628	439,583	1,095,263	27,052,377
VI. Connected with food and drink, etc. ..	25,644,382	22,442,516	12,984,071	4,567,611	1,947,234	1,338,249	68,924,063
VII. Clothing and textile fabrics, etc. ..	5,779,622	9,148,734	1,277,937	852,629	392,662	175,591	17,627,175
VIII. Books, paper, printing, and engraving ..	2,264,984	2,039,293	431,475	393,251	198,430	97,653	5,425,086
IX. Musical instrum'ts. etc.	77,117	30,058	..	1,365	..	..	108,540
X. *Arms and explosives*	*58,916*	*380,059*	..	*420*	..	..	*439,395*
XI. Vehicles and fittings, saddlery and harness, etc. ..	647,970	701,075	183,990	257,485	85,090	45,372	1,920,982
XII. Ship and boat building and repairing..	679,202	145,277	11,674	16,266	2,452	11,523	866,394
XIII. Furniture, bedding, and upholstery ..	846,642	627,585	201,200	128,539	85,510	34,582	1,924,058
XIV. Drugs, chemicals, and by-products ..	1,487,906	1,294,820	24,843	430,019	233,921	11,405	3,483,814
XV. Surgical and other scientific instrum'ts.	26,067	13,984	2,845	2,312	2,940	..	48,148
XVI. Jewellery, timepieces, and platedware ..	127,422	249,640	13,302	19,542	9,761	1,196	420,863
XVII. Heat, light, and power	1,260,218	741,257	108,304	111,354	45,459	25,918	2,292,510
XVIII. Leatherware, n.e.i. ..	351,685	355,580	23,120	13,021	2,540	..	745,946
XIX. Minor wares, n.e.i. ..	467,613	1,080,692	22,658	38,575	20,080	2,586	1,632,204
Total	69,737,452	52,098,737	19,693,043	13,759,882	3,963,470	3,230,188	162,482,772

(a) Includes Class II. (b) Included in Class I.

VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH, 1919–20.

Class of Industry.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	10,383,416	8,882,848	2,404,158	1,531,038	a535,873	463,589	24,200,922
II. Treating oils and fats, animal, vegetable, etc.	2,543,224	1,115,658	147,140	250,976	(b)	17,689	4,074,687
III. Processes in stone, clay, glass, etc. ..	925,662	390,501	74,894	172,810	24,578	13,013	1,601,458
IV. Working in wood ..	3,833,824	1,884,329	1,092,333	992,023	129,798	136,878	8,069,185
V. Metal works, machinery, etc. ..	16,332,274	4,432,535	1,334,413	1,407,396	383,712	1,052,940	24,943,270
VI. Connected with food and drink, etc. ..	29,296,352	27,028,497	11,802,957	5,602,411	2,622,618	1,395,070	77,747,905
VII. Clothing and textile fabrics, etc. ..	7,794,972	12,549,338	1,387,535	1,137,307	538,552	226,328	23,634,032
VIII. Books, paper, printing, and engraving	2,524,789	2,245,423	492,723	510,580	242,519	97,092	6,113,126
IX. Musical instruments, etc.	99,810	41,947	..	1,571	..	..	143,328
X. Arms and explosives	48,188	380,886	..	1,865	..	..	430,939
XI. Vehicles and fittings, saddlery and harness, etc. ..	763,825	866,480	162,581	389,979	96,030	46,591	2,345,486
XII. Ship and boat building and repairing..	766,945	192,725	13,862	37,880	2,137	14,070	1,027,619
XIII. Furniture, bedding, and upholstery ..	1,200,623	926,536	234,912	205,174	104,753	49,147	2,721,145
XIV. Drugs, chemicals, and by-products ..	1,991,682	1,557,602	27,933	490,980	282,943	18,596	4,369,736
XV. Surgical and other scientific instruments	29,779	21,523	3,268	3,652	5,535	..	63,762
XVI. Jewellery, timepieces, and platedware ..	174,719	361,863	17,382	33,403	14,195	1,443	603,005
XVII. Heat, light, and power	1,403,274	864,355	122,155	123,966	43,514	25,464	2,582,728
XVIII. Leatherware, n.e.i. ..	462,344	568,854	17,662	21,076	2,670	2,001	1,074,607
XIX. Minor wares, n.e.i. ..	612,795	1,251,199	30,160	56,870	21,687	3,226	1,975,937
Total	81,180,407	65,543,104	19,386,068	12,970,957	5,051,114	3,565,137	187,722,877

(a) Includes Class II. (b) Included in Class I.

The class in which the maximum value of raw materials was used was Class VI., "Connected with Food and Drink, etc.," the value being £77,747,905. The next important class in order of value was Class V., "Metal Works, Machinery, etc.," in which raw materials to the value of £24,943,270 were used. The class in which the minimum value appears is Class XV., "Surgical and other Scientific Instruments," the value being only £63,762. The following table gives particulars for the six years ended 1919-20 :—

VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1915 TO 1919-20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1915 ..	42,559,370a	30,728,743	15,939,583	8,720,436	2,634,700	2,193,250	102,776,082
1916b ..	44,227,079	30,728,743	16,127,926	8,720,436	3,033,038	2,342,623	105,180,445
1917c ..	57,044,667	37,103,750	20,938,266	11,331,814	3,322,424	2,541,175	132,283,096
1918c ..	64,718,726	42,133,636	19,693,043	12,442,808	3,963,470	3,230,188	146,181,866
1918-19d ..	69,737,452	52,098,737	19,693,043	13,759,882	3,963,470	3,230,188	162,482,772
1919-20d ..	81,168,497	65,563,104	19,386,068	12,970,957	5,051,114	3,563,137	187,722,877

(a) Year ended 30th June, 1915. (b) See note (a) first table this section.
(c) See note (b) first table this section. (d) See note (c) first table this section.

5. ***Total Value of Output of Manufacturing Industries.***—The values of the output of new goods manufactured and repairs effected in factories of various classes in each State during 1918-19 and 1919-20 are shewn in the following tables. The figures given represent not only the increase in value due to the process of manufacture, but also include the value of the raw materials used. The difference between the value of the materials used and the total output (see paragraph 6 hereof) is the real value of production from manufactories :—

TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH, 1918-19.

Class of Industry.	N.S.W. 1918-19.	Victoria. 1918-19.	Q'land. 1918.	S. Aust. 1918-19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	9,706,230	8,033,014	3,031,623	1,224,766	a468,883	a337,701	22,802,217
II. Treating oils and fats, animal, vegetable, etc.	3,188,749	1,209,060	238,558	310,069	(b)	(b)	4,946,436
III. Processes in stone, clay, glass, etc. ..	2,581,575	1,514,021	215,963	519,054	110,551	56,019	4,907,203
IV. Working in wood ..	4,560,888	3,185,881	1,870,980	928,975	634,418	361,081	11,542,223
V. Metal works, machinery, etc. ..	24,669,994	7,443,794	1,905,982	7,472,821	970,607	1,993,492	44,456,690
VI. Connected with food and drink, etc. ..	31,991,329	28,644,340	18,190,762	5,852,606	2,628,052	1,864,924	89,172,013
VII. Clothing and textile fabrics, etc. ..	9,719,421	14,885,688	2,175,189	1,443,899	637,172	373,145	29,234,514
VIII. Books, paper, printing, and engraving	4,470,684	4,185,035	1,179,442	776,701	480,430	235,907	11,328,199
IX. Musical instruments, etc.	196,256	82,769	..	3,655	..	..	282,680
X. Arms and explosives	424,088	561,894	..	900	..	..	986,882
XI. Vehicles and fittings, saddlery and harness, etc. ..	1,488,239	1,547,248	411,152	565,455	180,522	104,566	4,297,182
XII. Ship and boat building and repairing ..	1,732,149	353,910	29,309	44,270	7,011	21,888	2,188,537
XIII. Furniture, bedding, and upholstery ..	1,553,868	1,167,282	425,842	285,132	165,049	86,485	3,683,658
XIV. Drugs, chemicals, and by-products ..	2,541,187	2,068,311	56,687	648,162	325,748	14,456	5,654,551
XV. Surgical and other scientific instrum'ts	78,681	41,508	11,285	8,447	6,716	..	146,637
XVI. Jewellery, timepieces, and plated ware ..	294,902	485,882	35,335	53,587	19,620	5,682	895,008
XVII. Heat, light, and power	4,307,932	2,656,509	703,199	577,502	320,342	222,627	8,788,111
XVIII. Leatherware, n.e.i. ..	516,655	494,870	35,319	20,128	5,360	..	1,072,332
XIX. Minor wares, n.e.i. ..	780,191	1,634,661	43,192	74,501	43,024	6,246	2,581,815
Total	104,808,018	80,195,677	30,559,839	20,810,630	7,003,505	5,684,219	249,056,888

(a) Includes Class II. (b) Included in Class I.

TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH, 1919–20.

Class of Industry.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	13,002,928	11,026,037	2,025,919	1,961,516	a702,273	553,053	30,161,726
II. Treating oils and fats, animal, vegetable, etc. ..	3,478,428	1,612,514	227,476	352,818	(b)	23,681	5,694,917
III. Processes in stone, clay, glass, etc.	3,520,101	1,690,630	283,259	628,841	147,074	74,666	6,344,580
IV. Working in wood	5,888,337	4,062,773	2,446,879	1,378,312	890,884	470,844	15,138,029
V. Metal works, machinery, etc. ..	24,754,762	9,180,549	3,370,871	3,120,013	900,658	1,844,393	43,171,246
VI. Connected with food and drink, etc. ..	37,306,834	34,074,847	17,622,453	7,152,538	3,497,069	2,007,766	102,561,507
VII. Clothing and textile fabrics, etc.	12,890,808	20,655,143	2,384,288	1,684,815	845,625	469,036	39,129,805
VIII. Books, paper, printing, and engraving	5,300,048	4,720,748	1,273,792	983,914	550,624	248,935	13,138,061
IX. Musical instruments, etc. ..	268,042	111,987	..	5,194	..	..	385,223
X. Arms and explosives	322,666	521,731	..	2,492	..	..	846,889
XI. Vehicles and fittings, saddlery and harness, etc. ..	1,811,869	1,945,012	477,671	826,095	210,379	128,191	5,399,217
XII. Ship and boat building and repairing ..	2,434,986	448,858	34,045	89,686	6,647	22,929	3,037,151
XIII. Furniture, bedding, and upholstery	2,121,623	1,695,571	480,330	410,231	210,102	114,725	5,032,582
XIV. Drugs, chemicals, and by-products	3,143,747	2,455,553	64,778	783,589	379,070	26,292	6,853,027
XV. Surgical and other scientific instruments ..	73,394	55,594	12,563	10,490	11,129	..	163,170
XVI. Jewellery, timepieces, and plated ware	397,394	689,423	44,840	79,538	27,870	8,134	1,247,199
XVII. Heat, light, and power ..	4,745,657	2,843,470	721,050	659,363	288,671	213,682	9,472,793
XVIII. Leatherware, n.e.i.	665,348	825,371	27,440	32,210	6,381	2,829	1,559,579
XIX. Minor wares, n.e.i.	1,026,418	1,959,543	54,192	102,884	49,472	7,398	3,199,907
Total ..	123,213,480	101,475,363	32,452,744	20,454,539	8,723,928	6,216,554	292,536,608

(a) Includes Class II. (b) Included in Class I.

It will be seen that the State of New South Wales far outstrips the other States in the total value of the output of her factories, the value being £123,213,480, or 42.28 per cent. on the total for the Commonwealth. The next State in order of value is Victoria, which produced 34.69 per cent.; the value of the output of Queensland was 11.09 per cent.; of South Australia 6.99 per cent.; of Western Australia 2.98 per cent.; and of Tasmania 2.13 per cent. The two most important classes in order of value of output (Classes VI. and V.) are the same as in order of value of raw materials used. The following statement shews the value of output of factories, value per employee, and value per head of mean population in each State during the six years ended 1919–20:—

TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH DURING THE YEARS 1915 TO 1919-20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1915 ..	68,253,332a	51,466,093	25,444,812	13,994,223	5,712,793	4,215,447	169,086,700
1916b ..	70,989,864	51,466,093	25,541,094	13,994,223	6,007,111	4,576,580	172,574,845
1917c ..	85,944,820	60,047,284	31,969,302	17,392,352	6,256,888	4,768,000	206,376,646
1918c ..	96,178,191	67,066,715	30,559,839	19,261,142	7,003,506	5,684,219	225,753,611
1918–19d ..	104,803,018	80,195,677	30,559,889	20,810,830	7,003,505	5,684,219	249,056,888
1919–20d ..	123,213,480	101,475,363	32,452,744	20,454,539	8,723,928	6,216,554	292,536,608

(a) Year ended 30th June, 1915. (b) See note (a) first table this section.
(c) See note (b) first table this section. (d) See note (c) first table this section.

TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH DURING THE YEARS 1915 TO 1919–20—*continued.*

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
			PER EMPLOYEE.(a)				
	£	£	£	£	£	£	£
1915 ..	585*b*	452	605	540	390	501	527
1916*c* ..	610	452	639	549	474	547	545
1917*d* ..	728	513	790	669	514	590	642
1918*d* ..	798	567	746	723	542	652	688
1918–19*e* ..	821	655	740	745	542	652	731
1919–20*e* ..	853	743	794	695	566	621	777
			PER HEAD OF MEAN POPULATION.				
1915 ..	33.67*b*	36.07	37.04	31.35	17.72	21.15	34.21
1916*c* ..	37.95	36.07	37.69	31.85	19.09	23.09	34.97
1917*d* ..	46.24	42.93	47.43	40.19	20.27	23.97	42.30
1918*d* ..	50.87	47.53	44.38	44.16	22.51	27.89	45.62
1918–19*e* ..	55·30	56·05	44·38	46·69	22·51	27·89	49·64
1919–20*e* ..	61·53	67·83	45·52	43·69	26·97	29·40	56·02

(*a*) Including working proprietors. (*b*) Year ended 30th June, 1915. (*c*) See note (*a*) first table this section. (*d*) See note (*b*) first table this section. (*e*) See note (*c*) first table this section.

6. **Value of Production of Manufacturing Industries.**—The difference between the figures given in paragraph 5 and the corresponding figures in paragraph 4 represents the *amount added to the value of the raw materials by the process of manufacture.* This is the real measure of the value of production of manufacturing industries. The following tables shew the values added in this manner during *1918–19* and *1919–20* in each *State* for the various classes of factories :—

VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH, *1918–19.*

Class of Industry.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	£	£	£	£	£	£	£
I. *Treating raw material, product of agricultural and pastoral pursuits, etc.* ..	1,721,286	1,553,955	554,548	249,031	*a*109,241	*a*59,943	4,248,004
II. Treating oils and fats, animal, vegetable, etc.	778,742	402,648	96,507	81,262	(*b*)	(*b*)	1,359,159
III. Processes in stone, clay, glass, etc. ..	1,840,945	1,156,547	161,803	382,091	90,342	46,270	3,677,998
IV. Working in wood ..	1,605,340	1,733,279	1,004,368	314,515	516,461	257,738	5,431,701
V. Metal works, machinery, etc.	8,743,417	3,691,174	1,038,276	2,502,193	531,024	898,229	17,404,313
VI. *Connected with food and drink, etc.* ..	6,346,947	6,201,824	5,206,691	1,284,995	680,818	526,675	20,247,950
VII. Clothing and textile fabrics, etc. ..	*3,939,799*	*5,736,954*	*897,252*	*591,270*	*244,510*	*197,554*	*11,607,339*
VIII. Books, paper, printing, and engraving ..	2,205,700	2,145,742	747,967	383,450	282,000	138,254	5,903,113
IX. Musical instruments, etc.	119,139	52,711	..	2,290	..	..	174,140
X. Arms and explosives ..	365,172	181,835	..	480	..	..	547,487
XI. Vehicles and fittings, saddlery and harness, etc.	840,269	846,173	227,162	307,970	95,432	59,194	2,376,200
XII. Ship and boat building and repairing ..	1,052,947	208,633	17,635	28,004	4,559	10,365	1,322,143
XIII. Furniture, bedding, *and upholstery* ..	707,226	*539,697*	*224,642*	*156,593*	79,539	*51,903*	*1,759,600*
XIV. Drugs, chemicals, and by-products ..	1,053,281	773,491	31,844	217,243	91,827	3,051	2,170,737
XV. Surgical & other scientific instruments ..	52,614	27,524	8,440	6,135	3,776	..	98,489
XVI. Jewellery, timepieces, and plated ware ..	167,480	236,242	22,033	34,045	9,859	4,486	474,145
XVII. Heat, light, and power	3,047,714	1,915,252	594,895	466,148	274,883	196,709	6,495,601
XVIII. Leatherware, n.e.i. ..	164,970	139,290	12,199	7,107	2,820	..	326,386
XIX. Minor wares, n.e.i. ..	312,578	553,969	20,534	35,926	22,944	3,660	949,611
Total ..	*35,065,566*	*28,096,940*	*10,866,796*	*7,050,748*	*3,040,035*	*2,454,031*	*86,574,116*

(*a*) Includes Class II. (*b*) Included in Class I.

VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH, 1919–20.

Class of Industry.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W.Aust. 1919.	Tas. 1919.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	2,619,512	2,143,189	521,761	420,478	a166,400	89,464	5,960,804
II. Treating oils and fats, animal, vegetable, etc.	935,204	496,856	80,336	101,842	(b)	5,992	1,620,230
III. Processes in stone, clay, glass, etc. ..	2,594,439	1,300,138	208,365	456,031	122,496	61,653	4,743,122
IV. Working in wood ..	2,054,513	2,178,444	1,354,546	386,289	761,086	333,966	7,068,844
V. Metal works, machinery, etc.	8,422,488	4,748,014	2,036,458	1,712,617	516,946	791,453	18,227,976
VI. Connected with food and drink, etc. ..	8,010,482	7,946,350	5,819,496	1,550,127	874,451	612,696	24,813,602
VII. Clothing and textile fabrics, etc. ..	5,095,926	8,105,805	996,753	747,508	307,073	242,708	15,495,773
VIII. Books, paper, printing, and engraving ..	2,835,259	2,475,325	781,069	473,334	308,105	151,843	7,024,935
IX. Musical instruments, etc.	168,232	70,040	..	3,623	..	..	241,895
X. Arms and explosives ..	274,478	140,845	..	627	..	..	415,950
XI. Vehicles and fittings, saddlery and harness, etc.	1,048,044	1,078,532	295,090	436,116	114,349	81,600	3,053,731
XII. Ship and boat building and repairing ..	1,668,041	256,133	20,183	51,806	4,510	8,859	2,009,532
XIII. Furniture, bedding, and upholstery ..	921,000	769,035	245,418	205,057	105,349	65,578	2,311,437
XIV. Drugs, chemicals, and by-products ..	1,152,065	897,951	36,843	292,609	96,127	7,696	2,483,291
XV. Surgical & other scientific instruments ..	43,615	34,066	9,295	6,838	5,594	..	99,408
XVI. Jewellery, timepieces, and plated ware ..	222,675	327,560	27,458	46,135	13,675	6,691	644,194
XVII. Heat, light, and power	3,342,383	1,079,115	599,795	535,397	245,157	188,218	6,890,065
XVIII. Leatherware, n.e.i. ..	203,004	256,517	9,778	11,134	3,711	828	484,972
XIX. Minor wares, n.e.i. ..	413,623	708,344	24,032	46,014	27,785	4,172	1,223,970
Total	42,024,983	35,912,259	13,066,676	7,483,582	3,672,814	2,653,417	104,813,731

(a) Includes Class II. (b) Included in Class I.

The amount of the value added in each State is in the same order as in the case of value of output, the six most important classes being VI., V., VII., IV., VIII., and XVII., in the order named. The value added to raw material by process of manufacture and amount per employee and per head of mean population are shown in the following statement for the years 1915 to 1919–20 :—

VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH, 1915 TO 1919–20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
			VALUE.				
	£	£	£	£	£	£	£
1915 ..	25,693,962a	20,737,350	9,505,229	5,273,787	3,078,093	2,022,197	66,310,618
1916b ..	26,762,785	20,737,350	9,413,098	5,273,787	2,973,473	2,233,907	67,394,400
1917c ..	28,899,653	22,948,534	11,031,036	6,060,538	2,931,964	2,226,825	74,098,550
1918c ..	31,459,465	24,933,079	10,866,796	6,818,339	3,040,035	2,454,081	79,571,745
1918–19d ..	35,065,566	28,096,940	10,866,796	7,050,748	3,040,035	2,454,031	86,574,116
1919–20d ..	42,024,983	35,912,259	13,066,675	7,483,582	3,672,814	2,653,417	104,813,731

(a) Year ended 30th June, 1915. (b) See note (a) first table this section.
(c) See note (b) first table this section. (d) See note (c) first table this section.

VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH, 1915 TO 1919–20—*continued.*

Year.		N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
				PER EMPLOYEE.				
		£	£	£	£	£	£	£
1915	..	220*a*	182	226	207	210	240	207
1916*b*	..	230	182	235	207	235	267	213
1917*c*	..	245	196	273	233	241	276	230
1918*c*	..	261	211	265	256	235	282	243
1918–19*d*	..	275	230	265	253	235	282	254
1919–20*d*	..	291	263	320	254	238	265	278
				PER HEAD OF MEAN POPULATION.				
		£	£	£	£	£	£	£
1915	..	13.80*a*	14.54	13.84	12.00	9.55	10.14	13.41
1916*b*	..	14.31	14.54	13.89	12.00	9.45	11.27	13.66
1917*c*	..	15.55	16.40	16.37	14.01	9.50	11.19	15.19
1918*c*	..	16.64	17.67	15.78	15.63	9.77	12.04	16.08
1918–19*d*	..	18.17	19.64	15.78	15.82	9.77	12.04	17.25
1919–20*d*	..	20.98	24.01	18.33	15.98	11.35	12.55	20.07

(*a*) Year ended 30th June, 1915. (*b*) See note (*a*) first table this section.
(*c*) See note (*b*) first table this section. (*d*) See note (*c*) first table this section.

As the total value of the output for the Commonwealth for 1919–20 was estimated at £292,536,608, there remained, after payment of £187,722,877, the value of the raw materials used, of £52,115,558 for salaries and wages, and of £5,859,189 for fuel, the sum of £46,838,984 to provide for all other expenditure and profits. The following tables give corresponding particulars for each State, expressed absolutely, and as percentages on the total value of the output for the years 1918–19 and 1919–20 :—

VALUE OF OUTPUT AND COST OF PRODUCTION IN COMMONWEALTH FACTORIES, 1918–19.

State.		Raw Materials Used.	Fuel and Light.	Salaries and Wages.	All other Expenditure, Interest, and Profits.	Total Value of Output.
				VALUE AND COST, ETC.		
		£	£	£	£	£
New South Wales, 1918–19		69,737,452	2,298,041	16,957,919	15,809,606	104,803,018
Victoria, 1918–19	..	52,098,737	1,457,124	14,080,403	12,559,413	80,195,677
Queensland, 1918	..	19,693,043	424,099	5,121,188	5,321,509	30,559,839
South Australia, 1918–19	..	13,759,882	644,687	3,651,715	2,754,346	20,810,630
Western Australia, 1918	..	3,963,470	211,950	1,730,896	1,097,189	7,003,505
Tasmania, 1918	..	3,230,188	105,392	963,974	1,384,665	5,684,219
Commonwealth	..	162,482,772	5,141,293	42,506,095	38,926,728	249,056,888
				PERCENTAGE OF COSTS, ETC., ON TOTAL VALUE.		
		%	%	%	%	%
New South Wales, 1918–19		66.54	2.19	16.18	15.09	100.00
Victoria, 1918–19	..	64.96	1.82	17.56	15.66	100.00
Queensland, 1918	..	64.44	1.39	16.76	17.41	100.00
South Australia, 1918–19	..	66.12	3.10	17.55	13.23	100.00
Western Australia, 1918	..	56.59	3.03	24.71	15.67	100.00
Tasmania, 1918	..	56.83	1.85	16.96	24.36	100.00
Commonwealth	..	65.24	2.06	17.07	15.63	100.00

VALUE OF OUTPUT AND COST OF PRODUCTION IN COMMONWEALTH FACTORIES, 1919–20.

State.	Raw Materials Used.	Fuel and Light.	Salaries and Wages.	All other Expenditure, Interest, and Profits.	Total Value of Output.
	VALUE AND COST, ETC.				
	£	£	£	£	£
New South Wales, 1919–20	81,188,497	2,710,666	21,681,196	17,633,121	123,213,480
Victoria, 1919–20 ..	65,563,104	1,723,220	17,702,173	16,486,866	101,475,363
Queensland, 1919 ..	19,386,068	531,612	5,364,818	7,170,246	32,452,744
South Australia, 1919–20 ..	12,970,957	558,802	3,988,062	2,936,718	20,454,539
Western Australia, 1919 ..	5,0[illegible]1,114	222,334	2,173,350	1,277,130	8,723,928
Tasmania, 1919 ..	3,563,137	112,555	1,205,959	1,334,903	6,216,554
Commonwealth ..	187,722,877	5,859,180	52,115,558	46,838,984	292,536,608
	PERCENTAGE OF COSTS, ETC., ON TOTAL VALUE.				
	%	%	%	%	%
New South Wales, 1919–20	65.89	2.20	17.60	14.31	100.00
Victoria, 1919–20 ..	64.61	1.70	17.44	16.25	100.00
Queensland, 1919 ..	59.73	1.64	16.53	22.10	100.00
South Australia, 1919–20 ..	63.41	2.73	19.49	14.37	100.00
Western Australia, 1919 ..	57.90	2.55	24.91	14.64	100.00
Tasmania, 1919 ..	57.32	1.81	19.40	21.47	100.00
Commonwealth ..	64.17	2.00	17.82	16.01	100.00

§ 9. Land, Buildings, Plant and Machinery.

1. **General.**—As an indication of the permanent character and stability of the industries which have been established in the Commonwealth, it may be noted that the values of land and buildings and of plant and machinery used in the factories are rapidly increasing. Thus, for the whole Commonwealth the total value of land and buildings and plant and machinery has increased from 1915 to 1919–20 by £31,524,748, *i.e.*, from £81,492,417 to £113,017,165, or at the rate of £6,304,950 per annum.

The following statements shew the values of land and buildings and of plant and machinery used in connexion with manufacturing industries in each State during the past two years :—

VALUE OF LAND, BUILDINGS, PLANT AND MACHINERY IN CONNEXION WITH MANUFACTURING INDUSTRIES, 1918–19.

Value of—	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tasmania. 1918.	C'wealth.
	£	£	£	£	£	£	£
Land and buildings	22,081,877	13,673,515	5,519,316	3,672,831	2,487,967	843,399	48,278,905
Plant and machinery	23,651,152	13,645,220	8,391,480	3,551,386	2,742,386	1,916,184	53,897,808
Total ..	45,733,029	27,318,735	13,910,796	7,224,217	5,230,353	2,759,583	102,176,713

VALUE OF LAND, BUILDINGS, PLANT AND MACHINERY IN CONNEXION WITH MANUFACTURING INDUSTRIES, 1919–20.

Value of—	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tasmania. 1919.	C'wealth.
	£	£	£	£	£	£	£
Land and buildings	24,108,890	14,957,585	5,886,215	3,977,090	3,132,014	955,768	53,017,571
Plant and machinery	26,366,083	15,846,935	8,867,803	3,931,562	2,938,889	2,048,322	59,999,594
Total ..	50,474,973	30,804,520	14,754,018	7,908,661	6,070,903	3,004,090	113,017,165

The total capital invested in land, buildings, plant and machinery in manufacturing industries in the Commonwealth during the year 1919–20 was approximately £113,017,165 (or £21 12s. 10d. per head of population); of that sum £53,017,571 was invested in land and buildings occupied as manufactories, the remaining £59,999,594 being the value of the plant and machinery used in connexion therewith.

2. **Value of Land and Buildings.**—The value of the land and buildings occupied in connexion with manufacturing industries may be conveniently classified according to the nature of the industry concerned.

(i) *Total Value in Commonwealth, 1915 to 1919–20.* The following table shews for the whole Commonwealth the approximate values of land and buildings occupied in connexion with manufacturing industries of various classes during each year from 1915 to 1919–20 inclusive:—

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN COMMONWEALTH, 1915 TO 1919–20.

Class of Industry.	1915.*a*	1916.*b*	1917.*c*	1918.*c*	1918–19.*d*	1919–20.*d*
	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	1,069,890	1,002,686	1,126,504	1,237,117	1,415,725	1,588,513
II. Treating oils and fats, animal, vegetable, etc.	465,757	518,932	524,349	573,005	610,573	614,877
III. Processes in stone, clay, glass, etc.	1,666,097	1,620,520	1,657,760	1,739,247	1,943,848	2,216,901
IV. Working in wood ..	2,146,909	2,036,786	2,083,755	2,283,985	2,349,500	2,622,071
V. Metal works, machinery, etc.	6,587,199	6,800,296	7,137,251	7,961,012	8,163,051	8,997,496
VI. Connected with food and drink, etc.	9,852,479	10,508,926	11,209,366	11,640,843	12,403,204	13,411,552
VII. Clothing and textile fabrics, etc... ..	5,244,627	5,239,362	5,580,472	5,695,268	6,059,960	6,876,671
VIII. Books, paper, printing, and engraving ..	3,546,017	3,824,069	3,891,991	4,028,048	4,029,014	4,270,008
IX. Musical instruments, etc.	83,430	82,995	96,335	98,080	121,865	134,462
X. Arms and explosives ..	194,149	212,267	252,498	260,550	257,520	264,020
XI. Vehicles and fittings, saddlery and harness, etc.	1,825,999	1,822,565	1,866,859	1,955,096	2,156,572	2,467,633
XII. Ship and boat building and repairing ..	1,134,530	1,128,754	953,879	1,009,201	1,059,529	1,122,468
XIII. Furniture, bedding, and upholstery	1,094,646	1,075,547	1,071,635	1,108,879	1,189,103	1,325,762
XIV. Drugs, chemicals, and by-products	955,995	1,018,577	1,109,703	1,318,731	1,393,237	1,446,721
XV. Surgical and other scientific instruments ..	67,021	70,536	83,304	94,524	106,225	104,628
XVI. Jewellery, timepieces, and plated ware ..	344,452	325,126	334,147	336,269	369,050	425,214
XVII. Heat, light, and power..	2,775,148	3,150,513	3,655,063	3,873,224	3,999,806	4,342,913
XVIII. Leatherware, n.e.i. ..	137,666	137,391	150,660	165,835	178,444	231,073
XIX. Minor wares, n.e.i. ..	343,529	344,651	426,906	421,370	472,639	554,586
Total	39,535,540	40,915,199	43,212,487	45,795,704	48,278,965	53,017,571

(*a*) New South Wales figures for year ended 30th June, 1915. (*b*) See note (*a*) first table this section. (*c*) See note (*b*) first table this section. (*d*) See note (*c*) first table this section.

As shewn in the above table, the total net increase during the five years was £13,482,031, or an annual average of £2,696,406. The largest increases were in Classes VI., V., VII., and XVII., and amounted to £3,559,073, £2,410,297, £1,632,044, and £1,567,765 respectively.

(ii) *Value in each State.* The following tables give similar information for each State for the past two years :—

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1918-19.

Class of Industry.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	580,861	566,135	74,069	104,554	a62,577	a18,529	1,415,725
II. Treating oils and fats, animal, vegetable, etc.	370,990	150,925	31,989	56,663	(b)	(b)	610,573
III. Processes in stone, clay, glass, etc. ..	1,118,726	502,670	95,026	148,088	49,547	28,891	1,943,848
IV. Working in wood ..	1,146,827	448,970	239,208	172,423	260,920	81,092	2,349,500
V. Metal works, machinery, etc.	3,974,218	1,966,550	713,978	809,440	612,804	86,061	8,163,051
VI. Connected with food and drink, etc. ..	4,584,576	3,336,215	2,824,970	887,016	482,042	288,385	12,403,204
VII. Clothing and textile fabrics, etc. ..	2,624,841	2,358,925	423,995	330,780	108,586	113,853	6,059,980
VIII. Books, paper, printing, and engraving ..	1,910,576	987,510	486,532	343,403	242,558	58,435	4,029,014
IX. Musical instruments, etc.	74,285	45,200	..	2,400	..	..	121,885
X. Arms and explosives ..	84,510	169,510	..	3,500	..	..	257,520
XI. Vehicles and fittings, saddlery and harness, etc.	895,290	622,645	193,531	241,251	134,433	69,422	2,156,572
XII. Ship and boat building and repairing ..	747,527	257,445	11,207	37,720	3,180	2,450	1,059,529
XIII. Furniture, bedding, and upholstery ..	516,235	350,755	115,958	100,237	80,076	25,842	1,189,103
XIV. Drugs, chemicals, and by-products ..	638,728	457,440	12,814	179,600	99,655	5,000	1,393,237
XV. Surgical and other scientific instruments ..	48,396	28,680	12,064	9,000	8,085	..	106,225
XVI. Jewellery, timepieces, and plated ware ..	154,613	142,870	23,167	26,465	14,160	7,775	369,050
XVII. Heat, light, and power	2,298,670	1,017,140	232,603	185,911	210,839	54,634	3,999,806
XVIII. Leatherware, n.e.i. ..	93,590	66,760	8,470	5,130	4,485	..	178,444
XIX. Minor wares, n.e.i. ..	209,394	197,170	18,775	20,250	24,020	3,030	472,639
Total	22,081,877	13,673,515	5,519,316	3,672,831	2,487,967	843,399	48,278,905

(a) Includes Class II. (b) Included in Class I.

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1919–20.

Class of Industry.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	697,013	602,985	100,058	112,631	a61,594	14,232	1,588,513
II. Treating oils and fats, animal, vegetable, etc.	376,765	162,230	33,955	37,502	(b)	4,425	614,877
III. Processes in stone, clay, glass, etc.	1,275,292	558,225	89,079	191,451	78,973	23,881	2,216,901
IV. Working in wood ..	1,256,891	513,195	265,881	184,161	318,590	83,353	2,622,071
V. Metal works, machinery, etc.	4,348,638	2,080,265	965,606	828,893	626,890	147,204	8,997,496
VI. Connected with food and drink, etc. ..	4,838,379	3,548,675	2,762,361	951,646	986,963	323,528	13,411,552
VII. Clothing and textile fabrics, etc. ..	2,951,833	2,751,150	464,260	365,343	212,202	131,883	6,876,671
VIII. Books, paper, printing, and engraving ..	2,038,393	1,073,270	520,365	347,225	233,719	57,036	4,270,008
IX. Musical instruments, etc.	83,927	47,550	..	2,985	..	..	134,462
X. Arms and explosives ..	83,470	176,850	..	3,700	..	..	264,020
XI. Vehicles and fittings, saddlery and harness, etc.	1,022,946	716,090	194,271	315,706	147,460	71,158	2,467,633
XII. Ship and boat building and repairing ..	775,996	256,410	10,687	67,215	4,810	7,360	1,122,468
XIII. Furniture, bedding, and upholstery ..	563,228	417,990	136,833	106,561	79,028	22,122	1,325,762
XIV. Drugs, chemicals, and by-products ..	638,521	496,610	12,814	184,239	104,655	9,882	1,446,721
XV. Surgical and other scientific instruments ..	49,191	28,360	11,139	7,410	8,508	..	104,628
XVI. Jewellery, timepieces, and plated ware ..	169,128	165,450	30,105	30,688	19,245	10,598	425,214
XVII. Heat, light, and power	2,540,299	1,061,575	257,422	210,525	219,058	45,034	4,342,913
XVIII. Leatherware, n.e.i. ..	122,881	89,890	7,770	5,865	4,485	232	231,073
XIX. Minor wares, n.e.i. ..	257,149	210,795	23,600	23,351	25,834	3,880	564,588

The maximum value for the Commonwealth of land and buildings in any particular class was in Class VI., amounting to £13,411,552, or 25.30 per cent. on the total value. The next in order of importance were Classes V., VII., XVII., and VIII., in which the values were £8,997,496, £6,876,671, £4,342,913, and £4,270,008 respectively. The sum of the values for the five classes mentioned amounted to £37,898,640, or 71.48 per cent. on the total value for all classes.

(iii) *Value in each State, 1915 to 1919–20.* The following table shews the total value of land and buildings occupied as manufactories in each State at the end of each year from 1915 to 1919–20 inclusive :—

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1915 TO 1919-20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1915	16,843,698*a*	11,460,123	4,446,405	3,280,628	2,363,262	1,132,424	39,535,540
1916*b*	17,770,517	11,460,123	5,014,824	3,289,628	2,247,505	1,130,602	40,913,199
1917*c*	18,020,057	12,052,227	5,251,877	3,462,206	2,398,264	1,127,716	43,212,437
1918*c*	20,533,171	12,847,485	5,519,316	3,564,366	2,487,967	843,390	45,795,704
1918–19*d*.. ..	22,081,877	13,673,515	5,519,316	3,672,831	2,487,967	843,399	48,278,905
1919–20*d*.. ..	24,108,890	14,957,585	5,886,215	3,977,009	3,132,014	955,768	53,017,571

(*a*) Year ended 30th June, 1915. (*b*) See note (*a*) first table this section.
(*c*) See note (*b*) first table this section. (*d*) See note (*c*) first table this section.

It will be seen that since 1915 there has been a general increase throughout the Commonwealth, with the exception of Tasmania, where a gradual decline has been in evidence. The States shewing the largest growth were New South Wales, Victoria, and Queensland, with annual average increases of £1,453,038, £699,492, and £287,962 respectively.

3. **Value of Plant and Machinery.**—(i) *Total Value in Commonwealth, 1915 to 1919–20.* The following table shews for the whole Commonwealth the approximate value of plant and machinery used in factories during each year from 1915 to 1919–20 inclusive :—

VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN COMMONWEALTH, 1915 TO 1919-20.

Class of Industry.	1915.*a*	1916.*b*	1917.*c*	1918.*c*	1918–19*d*.	1919–20*d*.
	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc...	971,841	965,932	1,048,729	1,216,281	1,382,538	1,668,023
II. Treating oils and fats, animal, vegetable, etc. ..	545,796	576,877	597,327	634,936	688,737	712,583
III. Processes in stone, clay, glass, etc.	1,900,086	1,866,993	1,972,885	2,172,225	2,414,539	2,853,294
IV. Working in wood ..	2,611,407	2,806,653	2,784,838	2,915,781	3,063,111	3,398,146
V. Metal works, machinery, etc.	7,761,871	8,604,804	9,549,635	10,259,558	10,702,907	11,959,693
VI. Connected with food and drink, etc.	10,914,862	11,654,182	12,318,334	13,026,771	13,848,102	14,532,706
VII. Clothing and textile fabrics, etc.	1,798,564	1,846,758	1,926,718	2,006,988	2,255,623	3,059,732
VIII. Books, paper, printing, and engraving	2,987,190	3,054,941	3,070,739	3,124,559	3,225,151	3,684,858
IX. Musical instruments, etc.	19,119	21,191	22,841	26,327	26,532	31,302
X. Arms and explosives ..	228,031	228,210	308,536	323,073	345,880	327,700
XI. Vehicles and fittings, saddlery and harness, etc.	414,295	421,416	433,716	477,472	532,361	627,087
XII. Ship and boat building and repairing ..	768,159	511,237	1,312,832	1,477,247	1,627,143	1,711,746
XIII. Furniture, bedding, and upholstery	244,796	251,822	267,180	281,229	306,853	369,738
XIV. Drugs, chemicals, and by-products	916,136	868,126	906,091	1,055,262	1,091,229	1,264,703
XV. Surgical and other scientific instruments ..	13,955	13,878	19,021	19,818	23,333	28,257
XVI. Jewellery, timepieces, and plated ware	72,988	74,617	72,757	75,437	84,453	103,890
XVII. Heat, light, and power ..	9,582,800	9,970,117	10,865,297	11,274,492	12,025,382	13,127,258
XVIII. Leatherware, n.e.i. ..	31,706	34,240	33,029	37,103	40,477	48,136
XIX. Minor wares, n.e.i. ..	226,285	234,313	305,858	387,256	413,457	490,840
Total	41,956,877	44,006,302	47,315,863	50,792,305	53,897,808	59,999,594

(*a*) New South Wales figures for year ended 30th June, 1915. (*b*) See note (*a*) first table this section.
(*c*) See note (*b*) first table this section. (*d*) See note (*c*) first table this section.

It will be seen that during the period in question there has been a steady and substantial net increase amounting in all to £18,042,717, or an annual average of £3,608,543. Development has occurred in all classes of industry, the largest increase being in *Class V., "Metal Works, Machinery, etc.," where it amounted to £4,197,822,* while the two next were in Class VI., "Connected with Food and Drink, etc.," with an increase of £3,617,846, and Class XVII., "Heat, Light, and Power," £3,594,558.

(ii) *Value in each State, 1915 to 1919–20.* The figures which were given in the above table referred to the Commonwealth as a whole. In the following table they are shown for each State, and it will be seen that the increase referred to above is general throughout the States. New South Wales shews by far the largest increase, viz., £9,499,101; while Victoria comes next with £4,777,986. The establishment of the Electrolytic Zinc Works at Risdon, and a further extension of the State Hydro-electric *Works to cope with the demand for increased power, were mainly responsible for* the substantial increase noted in Tasmania during 1918.

VALUE OF PLANT AND MACHINERY IN FACTORIES, 1915 TO 1919–20.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1915 ..	16,866,982*a*	11,068,949	7,051,113	3,101,413	2,640,168	1,228,252	41,956,877
1916*b* ..	18,211,104	11,068,949	7,543,873	3,101,413	2,817,863	1,263,100	44,006,302
1917*c* ..	20,364,122	11,732,062	7,846,834	3,313,113	2,835,085	1,224,647	47,315,863
1918*c* ..	21,739,739	12,612,797	8,391,480	3,389,719	2,742,386	1,916,184	50,792,305
1918–19*d* ..	23,651,152	13,645,220	8,391,480	3,551,386	2,742,386	1,916,184	53,897,808
1919–20*d* ..	26,366,083	15,846,935	8,867,803	3,931,562	2,938,889	2,048,322	59,999,594

(*a*) Year ended 30th June, 1915. (*b*) See note (*c*) first table this section.
(*c*) See note (*b*) first table this section. (*d*) See note (*c*) first table this section.

(iii) *Classified Value in each State.* The following tables show the value of plant and machinery used in factories in each State during 1918–19 and 1919–20, classified according to the nature of the industry in which used :—

VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN EACH STATE, 1918–19.

Class of Industry.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	591,810	494,455	127,044	83,420	*a*47,593	*a*37,310	1,382,538
II. Treating oils and fats, animal, vegetable, etc.	441,387	157,580	51,188	38,582	(*b*)	(*b*)	688,737
III. Processes in stone, clay, glass, etc.	1,299,568	529,785	239,611	269,226	53,258	23,091	2,414,539
IV. Working in wood ..	1,011,460	615,675	473,132	85,184	691,303	186,357	3,063,111
V. Metal works, machinery, etc.	6,394,318	1,960,255	646,010	743,361	573,614	385,349	10,702,907
VI. Connected with food and drink, etc. ..	4,548,775	2,755,860	5,070,442	688,158	421,946	162,921	13,648,102
VII. Clothing and textile fabrics, etc. ..	756,812	1,158,355	136,887	116,699	35,165	51,705	2,255,623
VIII. Books, paper, printing and engraving ..	1,405,943	1,052,380	339,836	201,777	161,598	63,617	3,225,151
IX. Musical instruments, etc.	17,622	8,350	..	560	..	..	26,532
X. Arms and explosives ..	152,040	193,490	..	350	..	..	345,880
XI. Vehicles and fittings, saddlery and harness, etc.	228,300	161,940	41,491	64,000	21,249	15,381	532,361
XII. Ship and boat building and repairing ..	1,492,623	112,500	9,815	9,560	1,450	1,195	1,627,143
XIII. Furniture, bedding, and upholstery ..	98,626	99,000	43,234	38,978	17,657	9,358	306,853
XIV. Drugs, chemicals, and by-products ..	379,817	360,625	7,191	227,452	115,384	760	1,091,229
XV. Surgical and other scientific instruments	10,311	6,730	2,097	3,041	1,154	..	23,333
XVI. Jewellery, timepieces, and plated ware ..	31,747	37,480	4,304	6,792	2,390	1,750	84,453
XVII. Heat, light, and power	4,648,776	3,646,620	1,194,653	968,404	593,104	976,825	12,025,382
XVIII. Leatherware, n.e.i. ..	18,728	18,530	1,577	532	1,110	..	40,477
XIX. Minor wares, n.e.i. ..	124,489	276,810	2,068	5,304	4,421	565	413,457
Total	23,651,152	13,645,220	8,391,480	3,551,386	2,742,386	1,916,184	53,897,808

(*a*) Includes Class II. (*b*) Included in Class I.

VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN EACH STATE, 1919–20.

Class of Industry.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	757,649	534,080	172,470	100,716	*a*53,566	49,542	1,668,023
II. Treating oils and fats, animal, vegetable, etc.	451,138	167,495	53,703	38,582	(*b*)	1,665	712,583
III. Processes in stone, clay, glass, etc.	1,685,453	563,790	193,774	315,225	68,958	26,094	2,853,294
IV. Working in wood ..	1,162,548	697,780	506,580	94,131	738,902	198,205	3,398,146
V. Metal works, machinery, etc.	6,848,717	2,164,490	1,216,017	790,818	453,305	486,256	11,959,693
VI. Connected with food and drink, etc. ..	4,661,485	3,293,810	4,784,269	764,297	658,738	170,109	14,532,708
VII. Clothing and textile fabrics, etc. ..	986,460	1,716,020	144,278	118,017	38,077	55,980	3,059,722
VIII. Books, paper, printing, and engraving ..	1,707,303	1,159,950	369,786	230,396	165,183	52,240	3,684,858
IX. Musical instruments, etc.	21,097	9,515	..	690	..	..	31,302
X. Arms and explosives ..	123,705	203,520	..	475	..	..	327,700
XI. Vehicles and fittings, saddlery and harness, etc.	254,525	197,090	45,460	85,039	29,613	15,351	627,087
XII. Ship and boat building and repairing ..	1,502,655	110,055	11,280	77,061	1,555	9,140	1,711,746
XIII. Furniture, bedding, and upholstery ..	139,444	111,500	50,609	36,005	22,561	9,619	369,738
XIV. Drugs, chemicals, and by-products ..	513,904	365,335	7,386	263,806	112,137	2,135	1,264,703
XV. Surgical and other scientific instruments	13,569	7,170	1,937	4,230	1,351	..	28,257
XVI. Jewellery, timepieces, and plated ware ..	39,857	44,495	5,767	9,305	2,061	2,205	103,690
XVII. Heat, light, and power	5,112,816	4,163,425	1,300,491	994,860	686,700	969,066	13,127,358
XVIII. Leatherware, n.e.i. ..	22,638	22,310	1,261	552	1,310	65	48,136
XIX. Minor wares, n.e.i. ..	161,120	315,105	2,726	6,457	4,782	650	490,840
Total	26,366,083	15,846,935	8,867,803	3,931,562	2,938,889	2,048,322	59,999,594

(*a*) Includes Class II. (*b*) Included in Class I.

The greatest value for any particular class of industry is for Class VI., "Connected with Food and Drink, etc.," and amounts to £14,532,708, or 24.22 per cent. on the total for all classes. The next in order of importance is Class XVII., "Heat, Light, and Power," which amounts to £13,127,358, or 21.88 per cent. on the total; followed by Class V., "Metal Works, Machinery, etc.," amounting to £11,959,693, or 19.93 per cent. on the total value. The total for these three classes amounts to £39,619,759, or 66.03 per cent. on the total value for all classes.

§ 10. Individual Industries.

1. **General.**—The preceding remarks and tables furnish a general view of the recent development of particular classes of industries in Australia treated under the nineteen categories referred to in § 1, 3 hereof. In order to make the information complete, it is necessary to furnish details of the development of individual industries. While it is not possible, within the limits of this section, to give a full and detailed account of all the manufacturing industries of the Commonwealth, it is proposed to deal herein with such particular industries as are of special importance by reason of the number of persons employed, the number of factories, the amount of capital invested therein, the value of the production, or other features of special interest. In cases where there are only one or two establishments of a particular class in any State, returns relative to output are not published, in order to avoid disclosing information as to the operations of individual factories.

2. Tanning Industry.—(i) *Details for each State.* In Class I. (see § 1, 3 hereof) t most important industry is tanning. Until recent years, the production of tanneries Australia was confined to the coarser class of leathers, but lately the tanning of the fin skins has been undertaken with satisfactory results. The position of the industry in t several States is as follows :—

TANNERIES, 1918-19.

Item.	N.S.W. 1918–19.	Vic. 1918–19.	Q'land. 1918.	S.A. 1918–19.	W.A. 1918.	Tas.(a) 1918.	C'wlt
Number of factories	74	45	17	10	3	4	1
Number of employees	1,159	1,960	241	190	65	64	3,6
Actual horse-power of engines employed	1,812	2,588	335	278	116	118	5,2
Approx. value of land and buildings £	176,188	213,745	10,090	26,562	15,540	8,038	450,1
Approx. value of plant and machinery £	117,731	181,200	23,957	16,280	12,650	8,864	360,6
Total amount of wages paid during year £	189,346	303,925	34,731	31,274	9,065	8,702	577,0
Value of fuel used .. £	14,454	25,296	2,473	2,563	818	353	45,9
Value of raw material worked up £	1,710,212	2,104,410	309,287	158,629	72,739	67,815	4,423,0
Total value of output .. £	2,149,198	2,796,351	418,652	218,631	90,234	89,675	5,762,7
Value added in process of manufacture £	438,986	691,941	109,365	60,002	17,495	21,860	1,339,6

(a) Including fellmongering.

TANNERIES, 1919-20.

Item.	N.S.W. 1919–20.	Vic. 1919–20.	Q'land. 1919.	S.A. 1919–20.	W.A. 1919.	Tas. 1919.	C'wlt
Number of factories	77	48	17	10	4	4	1
Number of employees	1,351	2,161	260	214	74	87	4,1
Actual horse-power of engines employed	2,389	3,081	270	324	177	126	6,3
Approx. value of land and buildings £	214,335	263,695	19,410	27,854	18,190	8,837	552,6
Approx. value of plant and machinery £	140,458	216,445	25,165	17,925	13,550	9,433	422,9
Total amount of wages paid during year £	256,033	420,848	36,828	37,956	11,776	13,927	777,3
Value of fuel used .. .. £	17,601	35,469	2,739	3,567	1,179	426	60,9
Value of raw material worked up £	2,907,835	3,111,015	371,679	216,295	109,163	121,848	6,837,8
Total value of output .. £	3,548,164	4,150,873	483,140	302,111	134,953	153,095	8,772,3
Value added in process of manufacture £	640,329	1,039,858	111,461	85,816	25,790	31,247	1,934,5

(ii) *Raw Materials used in Tanneries.* The quantities of raw materials used i tanneries in each State are shewn in the following tables :—

RAW MATERIALS USED IN TANNERIES, 1918-19.

Particulars.		N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealt
Hides and calf skins ..	No.	607,604	905,504	110,628	72,331	24,180	21,552	1,741,7
Sheep pelts	"	2,922,510	1,151,758	66,059	80,310	17,369	24,432	4,262,4
Other skins	"	384,127	590,630	80,960	8,967	..	2,160	1,066,8
Bark	Tons	11,600	11,737	2,566	• 1,365	650	422	28,3

RAW MATERIALS USED IN TANNERIES, 1919-20.

Particulars.		N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealt
Hides and calf skins ..	No.	749,866	990,920	109,382	73,535	36,582	34,122	1,994,3
Sheep pelts	"	5,213,242	2,521,050	88,074	112,004	21,206	48,636	8,004,2
Other skins	"	560,304	258,967	335,828	14,279	..	2,030	1,171,4
Bark	Tons	13,301	13,623	2,338	1,268	976	605	32,0

(iii) *Progress of Tanning Industries, 1915 to 1919–20.* The development of the tanning industry during the period 1915 to 1919–20 is shewn in the following table :—

DEVELOPMENT OF TANNING INDUSTRY IN THE COMMONWEALTH, 1915 TO 1919-20.

Items.	1915.	1916.	1917.*a*	1918.	1918–19.*b*	1919–20.
Number of factories	165	163	156	153	153	160
Number of employees	3,376	3,303	3,437	3,306	3,688	4,147
Actual horse-power of engines used ..	3,899	4,145	4,449	4,884	5,247	6,367
Approx. value of land and buildings £	389,924	387,706	412,311	441,737	459,163	552,521
Approx. value of plant and machinery £	287,856	285,956	307,483	328,927	360,682	422,976
Total amount of wages paid £	418,363	422,014	466,071	493,880	577,043	777,368
Value of fuel used .. £	26,140	27,292	34,102	40,558	45,957	60,981
Value of raw materials worked up £	3,188,817	3,283,787	3,951,266	3,831,180	4,423,092	6,837,835
Value of final output .. £	4,088,140	4,233,427	4,979,988	4,990,412	5,762,741	8,772.336
Value added in process of manufacture £	899,323	949,640	1,028,722	1,159,232	1,339,649	1,934,501

(*a*) Including one wool-scouring and fellmongering establishment in Western Australia.
(*b*) Including fellmongering in Tasmania.

It will be seen from the above table that during the last five years the number of factories has decreased by 5, while the number of hands employed has increased by 771. The approximate amount of permanently invested capital shews a substantial increase, amounting to 41½ per cent. in the value of land and buildings, and 47 per cent. in that of plant and machinery. The amount of wages paid, value of materials used, and of final output, shew the large increases of 86, 114, and 115 per cent. respectively during the same period, while the value added in process of manufacture increased by 115 per cent. The relatively high increases which have taken place in the values of raw materials, added value, and final output in tanneries during the last five years, are not a reflection of any correspondingly large increase in the volume of business, but rather serve as an indication of the enhanced value of commodities since 1915.

3. **Fellmongering and Wool-scouring.**—(i) *Details for each State.* The next industry in importance in Class I. is that of fellmongering and wool-scouring, one of the earliest industries established in Australia. The following tables give particulars of the industry in each State during the past two years :—

FELLMONGERING AND WOOL-SCOURING, 1918–19.

Items.	N.S.W. 1918–19.	Vic. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W.A. 1918.	Tas. 1918.	C'wealth.
Number of factories	50	36	17	3	1	..	107
Number of employees	1,786	1,024	460	108	14	..	3,392
Actual horse-power of engines used ..	3,540	1,447	508	177	35	..	5,707
Approx. value of land and buildings £	198,650	207,045	48,073	*a*	*a*	..	466,658*b*
Approx. value of plant and machinery £	294,628	189,565	90,900	*a*	*a*	..	584,343*b*
Total amount of wages paid £	279,861	151,623	65,402	*a*	*a*	..	517,161*b*
Value of fuel used .. .. £	41,537	28,740	10,246	*a*	*a*	..	84,478*b*
Value of raw material worked up £	5,080,216	3,545,590	2,154,448	*a*	*a*	..	11,213,481*b*
Value of final output .. £	5,926,764	4,121,919	2,588,712	*a*	*a*	..	13,126,314*b*
Value added in process of manufacture £	866,548	576,329	434,264	*a*	*a*	..	1,912,833*b*

(*a*) Information not available for publication. (*b*) Including South Australia and Western Australia.

FELLMONGERING AND WOOL-SCOURING, 1919–20.

Items.	N.S.W. 1919–20.	Vic. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W.A. 1919.	Tas. 1919.	C'wealth.
Number of factories	48	38	20	3	1	..	110
Number of employees	1,775	1,223	461	123	28	..	3,610
Actual horse-power of engines used ..	3,608	1,550	582	165	120	..	6,025
Approx. value of land and buildings £	246,327	176,590	72,192	a	a	..	514,499b
Approx. value of plant and machinery £	346,559	183,665	132,423	a	a	..	683,227b
Total amount of wages paid £	*347,408	211,072	65,394	a	a	..	652,842b
Value of fuel used .. .. £	44,070	38,265	12,420	a	a	..	99,981b
Value of raw material worked up £	5,541,302	4,089,342	2,014,213	a	a	..	12,279,135b
Value of final output .. £	6,880,468	4,745,218	2,411,853	a	a	..	14,745,652b
Value added in process of manufacture £	1,339,166	655,876	397,640	a	a	..	2,466,517b

(a) Information not available for publication. (b) Including South Australia and Western Australia.

(ii) *Development of Fellmongering and Wool-scouring, 1915 to 1919–20.* The following return furnishes particulars of fellmongering and wool-scouring establishments in the Commonwealth for the last six years:—

DEVELOPMENT OF FELLMONGERING AND WOOL-SCOURING IN THE COMMONWEALTH, 1915 TO 1919–20.

Items.	1915.	1916.	1917.a	1918.	1918–19.	1919–20.
Number of factories	106	100	98	102	107	110
Number of employees	2,337	2,379	2,599	3,191	3,392	3,610
Actual horse-power of engines used ..	3,754	4,463	4,157	4,991	5,707	6,025
Approx. value of land and buildings £	266,440	263,530	276,162	348,170	466,658	514,499
Approx. value of plant and machinery £	329,780	334,131	369,728	488,301	584,343	683,227
Total amount of wages paid £	245,362	279,128	332,583	404,079	517,161	652,842
Value of fuel used .. .. £	40,834	44,914	53,667	66,113	84,478	99,981
Value of raw materials worked up £	5,223,231	5,903,149	7,341,638	10,290,131	11,213,481	12,279,135
Value of final output .. £	5,919,690	6,989,122	8,572,579	12,105,929	13,126,314	14,745,652
Value added in process of manufacture £	696,459	1,085,973	1,230,941	1,815,798	1,912,833	2,466,517

(a) Excluding one establishment in Western Australia, particulars of which are included in tanneries.

Though the number of establishments has only increased by 4, this industry has been considerably extended during the last five years. The number of hands employed has risen from 2,337 to 3,610, and the amount of salaries and wages paid from £245,362 to £652,842, or more than 166 per cent. Though an augmentation of values has materially assisted, the progress of this industry may be gauged from the fact that the values of raw materials used and of final output have been more than doubled, while the added value has increased by no less than 254 per cent.

4. Soap and Candle Factories.—(i) *Details for each State.* In Class II. (see § 1, 3 hereof) soap and candle factories are the most important establishments. The manufacture of these two products is frequently carried on in the same factory, so that separate returns cannot be obtained; it may, however, be said generally that the manufacture of soap is the more important of the two. The following tables give particulars of soap and candle factories in each State during the years 1918–19 and 1919–20:—

SOAP AND CANDLE FACTORIES, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W.A. 1918.a	Tas. 1918.a	C'wealth.
Number of factories	26	15	13	6	..	..	60
Number of employees	849	681	173	199	..	..	1,902
Actual horse-power of engines employed	820	431	135	182	..	..	1,568
Approx. value of land and buildings £	215,290	132,650	31,989	46,980	..	..	426,909
Approx. value of plant and machinery £	260,947	140,600	51,188	35,667	..	..	488,402
Total amount of wages paid during year £	102,945	92,663	25,153	31,001	..	..	251,762
Value of fuel used .. .. £	29,100	26,009	4,245	6,115	..	..	65,469
Value of raw material worked up £	837,240	638,057	142,051	213,069	..	..	1,830,417
Total value of output .. £	1,139,417	957,295	238,558	283,536	..	..	2,618,806
Value added in process of manufacture £	302,177	319,238	96,507	70,467	..	..	788,389

(a) Western Australia has three soap and candle establishments and Tasmania one, but separate details are not available for publication.

SOAP AND CANDLE FACTORIES, 1919-20.

Items.	N.S.W. 1919-20.	Victoria. 1919-20.	Q'land. 1919.	S. Aust. 1919-20.	W.A. 1919.a	Tas. 1919.	C'wealth.
Number of factories	25	16	13	6	..	1	61
Number of employees	1,017	738	172	214	..	22	2,163
Actual horse-power of engines employed	890	498	152	199	..	10	1,749
Approx. value of land and buildings £	223,120	139,705	b	27,879	..	b	428,824c
Approx. value of plant and machinery £	253,870	143,310	b	34,859	..	b	486,187c
Total amount of wages paid during year £	131,383	103,333	b	33,309	..	b	296,352c
Value of fuel used .. .. £	37,188	35,091	b	4,360	..	b	81,938c
Value of raw material worked up £	1,076,868	911,310	b	230,038	..	b	2,389,706c
Total value of output .. £	1,476,959	1,321,112	b	332,890	..	b	3,377,783c
Value added in process of manufacture £	400,091	409,802	b	93,852	..	b	988,077c

(a) Western Australia has three soap and candle establishments, but separate details are not available for publication. (b) Particulars not available for publication. (c) Including Queensland and Tasmania.

(ii) *Development of Soap and Candle Factories, 1915 to 1919-20.* The following table gives similar particulars for the last six years as regards the Commonwealth as a whole :—

DEVELOPMENT OF SOAP AND CANDLE FACTORIES IN THE COMMONWEALTH, 1915 TO 1919-20.

Items.	1915.a	1916.	1917.b	1918.b	1918-19.b	1919-20.c
Number of factories	75	72	65	62	60	61
Number of employees	2,141	2,009	2,049	2,128	1,902	2,163
Actual horse-power of engines used ..	1,420	1,477	1,165	1,083	1,568	1,749
Approx. value of land and buildings ..£	374,886	391,619	373,377	400,517	426,909	428,824
Approx. value of plant and machinery £	460,519	447,005	424,942	444,219	488,402	486,187
Total amount of wages paid ..£	219,865	219,398	228,284	242,960	251,762	296,352
Value of fuel used .. .. ..£	36,101	38,548	52,085	67,639	65,469	81,938
Value of raw material worked up ..£	1,285,950	1,318,105	1,407,431	1,762,408	1,830,417	2,389,706
Value of final output .. ..£	1,971,513	1,965,881	2,036,978	2,550,562	2,618,806	3,377,783
Value added in process of manufacture £	685,563	647,776	629,547	788,154	788,389	988,077

(a) Including three oil establishments in Western Australia. (b) Excluding three soap and candle establishments in Western Australia, and one in Tasmania. (c) Excluding three soap and candle establishments in Western Australia.

(iii) *Production of Soap and Candles, 1915 to 1919-20.* The subjoined statement furnishes particulars of the output of soap and candles during the past six years :—

PRODUCTION OF SOAP AND CANDLES IN THE COMMONWEALTH, 1915 TO 1919-20.

Particulars.		1915.a	1916.a	1917.a	1918.a	1918-19.a	1919-20.a
Soap	cwt.	729,984	727,349	671,326	746,166	694,456	788,478
Candles	,,	104,986	102,775	100,497	101,098	97,692	104,676

(a) Exclusive of Western Australia.

(iv) *Raw Materials Used, 1915 to 1919-20.* The following statement shews the quantity of certain raw materials used in soap and candle factories in the Commonwealth during the years 1915 to 1919-20 :—

RAW MATERIALS USED IN SOAP AND CANDLE FACTORIES, 1915 TO 1919-20.

Particulars.		1915.a	1916.a	1917.a	1918.a	1918-19.a	1919-20.a
Tallow	cwt.	439,402	416,649	382,186	423,021	431,638	390,267
Alkali	,,	159,344	154,348	148,683	144,112	126,981	123,101
Coconut oil	gal.	485,851	630,296	524,918	533,685	624,802	459,549

(a) Exclusive of Western Australia.

5. Saw Mills, etc.—The most important industry in Class IV. is that of saw-milling. As separate particulars of forest saw mills are not available for some of the States, both forest and other saw mills, as well as joinery, moulding, and box factories have been combined in the following tables :—

SAW MILLS, FOREST AND OTHER, JOINERY, ETC., 1918-19.

Items.	N.S.W. 1918-19.	Victoria. 1918-19.	Q'land. 1918.	S. Aust. 1918-19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	625	436	281	75	68	136	1,621
Number of employees ..	7,796	7,062	4,227	1,225	2,544	1,573	24,427
Actual horse-power of engines employed	16,802	10,958	8,682	1,904	6,377	1,918	46,641
Approximate value of land and buildings.. .. £	1,010,914	389,190	223,660	169,363	260,920	78,462	2,132,509
Approximate value of plant and machinery .. £	941,028	579,730	456,311	84,212	691,303	185,107	2,937,691
Total amount of wages paid during year .. £	996,936	942,137	536,132	175,111	372,433	166,338	3,189,087
Value of fuel used .. £	32,723	24,240	10,629	6,113	2,787	1,802	78,294
Value of raw mater'l worked up £	2,808,547	1,320,400	825,143	599,774	117,957	102,178	5,773,999
Total value of output £	4,285,205	2,923,530	1,786,190	903,311	634,418	357,876	10,890,530
Value added in process of manufacture .. .. £	1,476,658	1,603,130	961,047	303,537	516,461	255,698	5,116,531

SAW MILLS, FOREST AND OTHER, JOINERY, ETC., 1919-20.

Items.	N.S.W. 1919-20.	Victoria. 1919-20.	Q'land. 1919.	S. Aust. 1919-20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
Number of factories	678	470	282	82	82	172	1,766
Number of employees ..	8,490	8,080	4,661	1,401	3,527	2,006	28,171
Actual horse-power of engines employed	17,304	12,704	8,773	2,201	8,050	2,659	51,691
Approximate value of land and buildings .. £	1,100,879	448,375	248,178	180,601	318,590	79,388	2,376,011
Approximate value of plant and machinery .. £	1,061,242	658,490	487,610	92,341	738,902	195,121	3,253,706
Total amount of wages paid during year .. £	1,197,600	1,185,005	654,885	203,186	580,211	231,820	4,052,707
Value of fuel used .. £	41,240	25,060	11,052	6,622	4,317	3,044	91,341
Value of raw material worked up	3,626,672	1,716,890	1,047,508	968,340	129,798	134,902	7,624,110
Total value of output £	5,522,406	3,709,114	2,350,476	1,339,647	890,884	464,456	14,276,983
Value added in process of manufacture .. .. £	1,895,734	1,992,224	1,302,968	371,307	761,086	329,554	6,652,873

The development of forest and other saw mills, etc., since 1915 is shewn in the following table :—

DEVELOPMENT OF SAW MILLS, FOREST AND OTHER, JOINERY, ETC., IN THE COMMONWEALTH FROM 1915 TO 1919-20.

Items.	1915.	1916.	1917.	1918.	1918-19.	1919-20.
Number of establishments	1,567	1,526	1,517	1,575	1,621	1,766
Number of employees	24,847	22,173	20,902	22,756	24,427	28,171
Actual horse-power of engines used ..	46,479	44,456	43,833	45,756	46,641	51,691
Approx. value of land and buildings £	1,969,756	1,845,812	1,901,505	2,086,166	2,132,509	2,376,011
Approx. value of plant and machinery £	2,502,325	2,693,132	2,662,625	2,784,355	2,937,691	3,253,706
Total amount of wages paid .. £	2,780,990	2,552,197	2,558,412	2,870,214	3,189,087	4,052,707
Value of fuel used .. .. £	51,276	52,273	60,567	69,506	78,294	91,341
Value of raw material worked up £	4,602,863	4,487,201	4,463,996	5,159,691	5,773,999	7,624,110
Value of final output .. £	8,892,082	8,297,110	8,443,255	9,829,872	10,890,530	14,276,983
Value added in process of manufacture £	4,289,219	3,809,909	3,979,259	4,670,181	5,116,531	6,652,873

The pre-war development in the building and other trades in Australia using timber received a temporary set-back during the war years, but the all-round increases since 1918 in wages, value of materials used, and final output, as well as in capital invested in land and buildings and plant and machinery, shew that the trade has practically regained its normal rate of progression.

6. *Agricultural Implement Factories.*—The manufacture of agricultural implements is an important industry in Australia, and is of particular interest owing to the fact that it was one of the first industries to which it was sought to apply the so-called "New Protection" system. The articles manufactured include stripper harvesters, strippers, stump-jump and other ploughs, harrows, disc and other cultivators, winnowers, corn-shellers and baggers, drills, and other implements usually employed in agriculture. The stripper-harvester, which combines the stripper with a mechanism for winnowing and bagging grain, is an Australian invention, and is exported to many countries.

The following tables give particulars of the agricultural implement works of Australia for the years 1918–19 and 1919–20 :—

AGRICULTURAL IMPLEMENT WORKS, 1918-19.

Items.	N.S.W. 1918-19	Vic. 1918-19.	Q'land. 1918.	S.A. 1918-19.	W.A. 1918.*a*	Tas. 1918.	C'wealth. *c*
Number of factories	25	60	6	46	..	1	138
Number of employees	455	1,689	68	699	..	3	2,914
Actual horse-power of engines employed	294	1,081	103	856	..	4	2,338
Approx. value of land and buildings £	126,691	161,200	*b*	67,003	..	*b*	367,951
Approx. value of plant and machinery £	39,954	224,600	*b*	75,397	..	*b*	350,754
Total amount of wages paid during year £	72,620	240,360	*b*	92,085	..	*b*	420,750
Value of fuel used .. .. £	2,211	18,100	*b*	6,174	..	*b*	26,755
Value of raw material worked up £	75,353	337,730	*b*	110,381	..	*b*	531,766
Total value of output .. £	188,519	702,870	*b*	237,622	..	*b*	1,149,121
Value added in process of manufacture £	113,166	365,140	*b*	127,241	..	*b*	617,355

(*a*) Western Australia has three agricultural implement establishments, but separate details are not available for publication. (*b*) Information not available for publication. (*c*) Excluding Western Australia.

AGRICULTURAL IMPLEMENT WORKS, 1919-20.

Items.	N.S.W. 1919–20.	Vic. 1919–20.	Q'land. 1919.	S.A. 1919–20.	W.A. 1919.*a*	Tas. 1919.	C'wealth. *c*
Number of factories	27	61	6	40	..	1	141
Number of employees	505	1,771	87	751	..	2	3,116
Actual horse-power of engines employed	300	1,178	103	921	..	3	2,505
Approx. value of land and buildings £	135,113	152,770	*b*	70,167	..	*b*	368,897
Approx. value of plant and machinery £	45,469	238,175	*b*	78,713	..	*b*	372,949
Total amount of wages paid during year £	93,614	272.262	*b*	93,016	..	*b*	465,558
Value of fuel used .. .. £	3,546	20,001	*b*	6,284	..	*b*	30,096
Value of raw material worked up £	99,632	349,555	*b*	129,242	..	*b*	586,048
Total value of output .. £	233,775	757,062	*b*	272,457	..	*b*	1,282,931
Value added in process of manufacture £	134,143	407,507	*b*	143,215	..	*b*	696,883

(*a*) Western Australia has three agricultural implement establishments, but separate details are not available for publication. (*b*) Information not available for publication. (*c*) Excluding Western Australia.

A glance at the following table will shew that the Agricultural Implement industry has failed to progress during the last five years. There are fewer factories, fewer hands, less power used, and the total output is smaller than it was in 1915 :—

DEVELOPMENT OF AGRICULTURAL IMPLEMENT WORKS IN THE COMMONWEALTH, FROM 1915 TO 1919-20.

Items.	1915.	1916.	1917.*a*	1918.*b*	1918–19.*b*	1919–20.*b*
Number of factories	153	151	142	142	138	141
Number of employees	3,606	3,538	3,313	3,336	2,914	3,116
Actual horse-power of engines used ..	2,905	2,811	2,613	2,566	2,338	2,505
Approx. value of land and buildings £	363,166	355,108	340,521	355,830	367,951	368,897
Approx. value of plant and machinery £	337,459	336,397	339,244	360,621	350,754	372,949
Total amount of wages paid £	428,870	425,866	427,102	428,522	420,750	465,558
Value of fuel used .. .. £	29,167	29,067	27,659	30,011	26,755	30,096
Value of raw material worked up £	664,412	757,231	798,110	762,969	531,766	586,048
Value of final output .. £	1,299,308	1,457,645	1,465,955	1,415,375	1,149,121	1,282,931
Value added in process of manufacture £	634,896	700,414	667,845	652,406	617,355	696,883

(*a*) Excluding three establishments in Western Australia and one in Tasmania.
(*b*) Excluding three establishments in Western Australia.

7. Engineering Works, Ironworks, and Foundries.—The classification in these industries is not very satisfactory. Generally, engineering shops, ironworks, and foundries are included, as also are factories for making nails, safes, patterns, meters, and springs. Railway workshops, agricultural implement factories, cyanide, smelting, pyrites, and metallurgical works, galvanised iron, stoves and ovens, and wire working establishments are not included. The combination of industries is rendered necessary owing to the limited classification still adopted by some of the States.

ENGINEERING WORKS, IRONWORKS, AND FOUNDRIES, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.a	Tas. 1918.	C'wealth.
Number of factories	358	455	95	64	67	19	1,058
Number of employees.. ..	12,583	8,286	1,980	1,532	1,080	364	25,834
Actual horse-power of engines employed	32,047	9,725	1,942	1,302	1,741	321	47,078
Approximate value of land and buildings .. .. £	1,825,954	788,075	204,375	129,541	165,398	26,641	3,139,984
Approximate value of plant and machinery .. £	3,542,275	990,135	207,924	166,587	163,629	41,075	5,120,625
Total amount of wages paid during year .. £	1,982,296	1,173,766	250,544	196,469	168,207	50,341	3,821,623
Value of fuel used .. £	453,365	142,550	14,571	19,025	16,249	3,359	649,119
Value of raw materials worked up £	7,199,948	1,894,110	248,148	269,449	292,196	38,535	9,942,386
Total value of output £	10,528,876	3,873,336	645,115	568,130	562,762	112,956	16,291,175
Value added in process of manufacture .. .. £	3,328,928	1,979,226	396,967	298,681	270,566	74,421	6,348,789

(a) Including three agricultural implement establishments.

ENGINEERING WORKS, IRONWORKS, AND FOUNDRIES, 1919–20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.a	Tas. 1919.	C'wealth.
Number of factories	401	496	92	66	66	20	1,141
Number of employees ..	16,064	9,823	2,073	1,588	1,097	405	31,050
Actual horse-power of engines employed	36,548	11,850	1,742	1,462	1,521	287	53,410
Approximate value of land and buildings .. £	2,110,370	876,015	202,526	139,075	170,581	29,366	3,527,933
Approximate value of plant and machinery .. £	4,581,961	1,133,765	220,247	180,153	176,113	38,046	6,339,285
Total amount of wages paid during year .. £	2,922,591	1,509,527	285,141	218,472	167,351	58,359	5,161,441
Value of fuel used .. £	844,850	136,476	17,580	21,323	13,422	3,361	1,037,012
Value of raw materials worked up £	8,990,279	2,144,292	223,304	326,086	199,980	44,719	11,928,660
Total value of output £	13,625,262	4,677,408	666,280	660,829	452,790	126,760	20,209,329
Value added in process of manufacture .. .. £	4,634,983	2,533,116	442,976	334,743	252,810	82,041	8,280,669

(a) Including three agricultural implement establishments.

In addition to engineering works which supply ordinary requirements, there is now a number of large and important establishments which engage in the manufacture of special classes of machinery and implements. The manufacture of mining and smelting machinery and apparatus forms an important section of this industry.

The development of engineering works, ironworks, and foundries in the Commonwealth since 1915 is shown in the following table :—

DEVELOPMENT OF ENGINEERING WORKS, IRONWORKS, AND FOUNDRIES, FROM 1915 TO 1919–20.

Items.		1915.	1916.	1917.*a*	1918.*a*	1918–19*a*.	1919–20*a*.
Number of factories ..	..	950	956	962	1,012	1,058	1,141
Number of employees ..	..	25,219	25,718	23,543	23,783	25,834	31,050
Actual horse-power of engines used	..	34,049	39,658	42,502	44,317	47,078	53,410
Approx. value of land and buildings	£	2,315,984	2,424,759	2,581,605	2,910,881	3,139,984	3,527,933
Approx. value of plant and machinery	£	2,983,650	3,655,662	4,274,067	4,744,750	5,120,625	6,339,285
Total amount of wages paid	£	3,134,873	3,468,260	3,265,738	3,365,045	3,821,023	5,181,441
Value of fuel used ..	£	869,170	420,139	431,448	493,116	649,119	1,037,012
Value of raw material worked up	£	4,005,914	4,718,516	5,932,214	7,520,930	9,942,386	11,929,660
Value of final output ..	£	8,944,601	10,205,424	11,096,741	13,322,795	16,291,175	20,209,329
Value added in process of manufacture	£	4,938,687	5,486,908	5,164,527	5,801,865	6,348,789	8,280,669

(*a*) Including three agricultural implement establishments in Western Australia.

The progress in these industries during late years has been very marked. Since 1915 the number of establishments has increased by more than 20 per cent., the amount of wages paid 64½ per cent., the amount of capital invested in land, buildings, plant and machinery 86 per cent., and the output nearly 126 per cent.

8. **Railway and Tramway Workshops.**—(i) *Details for each State.* The railway workshops of Australia form an important item in the metal and machinery class, and are chiefly State institutions. The following tables give the details concerning them, but include also private and municipal establishments for manufacturing and repairing rolling stock :—

RAILWAY AND TRAMWAY WORKSHOPS, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	39	19	12	9	8	7	94
Number of employees	8,443	3,696	2,522	2,637	1,410	328	19,036
Actual horse-power of engines employed	5,516	1,648	2,866	776	2,446	182	13,434
Approximate value of land and buildings .. .. £	1,177,081	684,510	357,464	275,979	442,517	7,075	2,944,626
Approximate value of plant and machinery .. £	1,183,517	497,700	256,051	200,972	408,268	90,083	2,636,591
Total amount of wages paid during year .. .. £	1,425,997	577,120	430,089	388,531	237,291	47,801	3,106,829
Value of fuel used .. £	31,322	24,850	7,632	14,221	10,929	1,864	90,818
Value of raw material worked up £	1,002,590	532,020	194,250	192,721	138,119	21,957	2,082,557
Total value of output £	2,487,961	1,248,380	556,565	660,565	391,635	73,890	5,418,996
Value added in process of manufacture .. .. £	1,485,371	715,460	362,315	467,844	253,516	51,933	3,336,439

RAILWAY AND TRAMWAY WORKSHOPS, 1919–20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
Number of factories	39	19	12	9	8	7	94
Number of employees	9,832	4,373	2,748	2,593	1,576	366	21,488
Actual horse-power of engines employed	6,864	2,312	2,937	934	2,396	183	15,626
Approximate value of land and buildings .. .. £	1,190,066	691,230	357,444	280,188	450,835	7,075	2,976,838
Approximate value of plant and machinery .. £	1,233,946	542,835	255,264	218,392	275,316	90,248	2,616,001
Total amount of wages paid during year .. .. £	1,967,849	791,753	480,874	432,202	246,746	58,278	3,977,702
Value of fuel used .. £	40,002	26,152	7,816	17,680	11,399	1,947	104,496
Value of raw material worked up £	1,391,788	804,061	227,930	213,243	169,422	23,463	2,829,907
Total value of output .. £	3,458,750	1,784,163	628,199	734,729	423,601	87,542	7,116,984
Value added in process of manufacture .. .. £	2,066,962	980,102	400,269	521,486	254,179	64,079	4,287,077

(ii) *Northern Territory Railway Workshop.* In addition to the above, a railway workshop is in operation in the Northern Territory. The work is confined almost exclusively to repairs to rolling stock, etc., no new goods being manufactured. For the sake of convenience this establishment is not included in any of the tables in this section.

(iii) *Development of Railway and Tramway Workshops, 1915 to 1919–20.* The following table shews the development of railway and tramway workshops in the Commonwealth since 1915:—

DEVELOPMENT OF RAILWAY AND TRAMWAY WORKSHOPS, ETC., FROM 1915 TO 1919–20.

Items.	1915.	1916.	1917.	1918.	1918–19.	1919–20.
Number of factories	77	92	94	95	94	94
Number of employees	22,224	22,095	20,566	18,071	19,030	21,488
Actual horse-power of engines used ..	12,571	14,350	13,363	12,874	13,434	15,626
Approximate value of land and buildings .. .. .. £	2,471,731	2,548,223	2,609,432	2,904,419	2,944,626	2,976,838
Approximate value of plant and machinery .. .. £	2,236,578	2,389,065	2,480,239	2,614,127	2,636,591	2,616,001
Total amount of wages paid £	3,174,946	3,409,265	3,270,817	2,839,827	3,106,829	3,977,702
Value of fuel used .. .. £	90,490	92,200	87,701	81,487	90,818	104,496
Value of raw material worked up £	2,363,785	2,234,063	2,010,288	1,934,645	2,082,557	2,829,907
Value of final output .. £	6,046,521	6,298,338	5,566,940	5,037,255	5,418,996	7,116,984
Value added in process of manufacture £	3,682,736	3,974,275	3,556,652	3,102,610	3,336,439	4,287,077

The *growth of the railway and tramway systems, conjointly with heavy increases in* passenger and goods traffic throughout the Commonwealth, has resulted in corresponding activity in workshops engaged in the manufacture or repair of rolling stock, etc. Since the war, however, the operations of these establishments have been restricted, on the score of economy, to necessary works, and consequently the value of output only increased from £6,046,521 in 1915 to £7,116,984 in 1919–20.

9. Smelting Works, etc.—The subjoined tables give particulars of metal smelting, cyanide, pyrites, and metallurgical works. The classification of these works does not appear to be carried out on an uniform basis in the several States, and the combination of industries is, therefore, somewhat unsatisfactory. The returns do not include particulars of plants used on mines.

SMELTING, CYANIDE, PYRITES, ETC., WORKS, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W.A.(a) 1918.	Tasmania. 1918.	C'wealth.
Number of factories	26	15	10	2	..	3	56
Number of employees ..	*3,171*	*179*	*174*	*2,438*	..	*678*	*6,640*
Actual horse-power of engines employed	14,806	392	978	8,770	..	5,420	30,366
Approximate value of land and buildings .. .. £	323,434	12,260	16,630	*b*	..	*b*	*c* 645,090
Approximate value of plant and machinery .. £	1,238,641	32,580	86,680	*b*	..	*b*	*c* 1,832,731
Total amount of wages paid during year .. £	638,915	26,154	29,630	*b*	..	*b*	*c* 1,405,543
Value of fuel used .. £	227,186	6,509	8,497	*b*	..	*b*	*c* 549,456
Value of raw material worked up £	5,637,632	143,011	124,236	*b*	..	*b*	*c* 11,132,686
Total value of output £	8,543,022	215,328	173,744	*b*	..	*b*	*c* 16,337,792
Value added in process of manufacture .. .. £	2,906,390	72,317	49,508	*b*	..	*b*	*c* 5,205,106

(*a*) See third paragraph below. (*b*) Information not available for publication. (*c*) Including South Australia and Tasmania.

SMELTING, CYANIDE, PYRITES, ETC., WORKS, 1919–20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W.A.(a) 1919.	Tasmania. 1919.	C'wealth.
Number of factories	11	14	13	2	..	6	46
Number of employees.. ..	1,142	143	973	1,204	..	732	4,194
Actual horse-power of engines employed	7,152	316	7,470	7,756	..	5,827	28,523
Approximate value of land and buildings .. .. £	224,828	11,445	266,016	b	..	b	c 843,747
Approximate value of plant and machinery .. £	373,331	27,335	633,148	b	..	b	c1,018,781
Total amount of wages paid during year .. £	200,803	21,098	121,270	b	..	b	c 824,098
Value of fuel used .. £	47,221	4,815	114,990	b	..	b	c 291,367
Value of raw material worked up £	3,317,752	104,896	538,395	b	..	b	c5,383,557
Total value of output.. £	3,711,485	159,790	1,506,421	b	..	b	c7,908,611
Value added in process of manufacture .. .. £	393,733	54,894	968,026	b	..	b	c2,525,054

(a) See third paragraph below. (b) Information not available for publication.
(c) Including South Australia and Tasmania.

In New South Wales the above figures represent ten smelting works and one metallurgical establishment; those for Victoria include five cyanide works, four metallurgical, two pyrites, and three smelting works; Queensland smelting and cyaniding; and South Australia and Tasmania smelting works.

A serious depression has taken place in the metal and ore reduction industries owing to the fall in the prices of metals. Since 1918 the number of establishments has dropped from 63 to 46, and the number of hands from 7,085 to 4,194. Corresponding decreases have occurred in wages paid and fuel used, while the value of output has fallen from £18,409,027 to £7,908,611.

In Western Australia all the plants are worked on the mines, and are therefore not included.

10. **Bacon-curing Factories.**—(i) *Details for each State.* The following tables give particulars of factories engaged in bacon-curing in each State during the past two years :—

BACON-CURING FACTORIES, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	23	21	7	14	7	5	77
Number of employees	290	503	459	144	48	22	1,466
Actual horse-power of engines employed	454	1,116	792	172	114	65	2,713
Approx. value of land and buildings £	104,065	105,030	105,226	20,271	16,725	5,275	357,192
Approx. value of plant and machinery .. .. .. £	42,527	70,820	58,299	11,972	6,322	1,160	191,100
Total amount of salaries and wages paid .. .. £	57,087	76,308	79,072	19,571	6,083	2,678	240,799
Value of fuel used .. £	9,408	10,360	8,251	1,766	764	397	30,946
Value of raw material worked up £	697,566	886,810	705,851	227,600	93,512	47,444	2,658,783
Total value of output .. £	863,644	1,107,910	1,172,207	258,955	104,831	53,105	3,560,652
Value added in process of manufacture .. .. £	166,078	221,100	466,356	31,355	11,319	5,661	901,869

BACON-CURING FACTORIES, 1919–20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
Number of factories	22	21	7	10	7	4	71
Number of employees	283	549	380	121	72	20	1,425
Actual horse-power of engines employed	639	1,186	740	193	254	69	3,083
Approx. value of land and buildings £	104,564	140,970	105,646	20,094	38,965	4,176	414,415
Approx. value of plant and machinery .. .. .. £	43,286	83,740	58,540	11,416	12,725	1,114	210,821
Total amount of salaries and wages paid .. .. £	59,169	99,738	71,051	21,077	10,459	3,066	264,560
Value of fuel used .. £	9,771	12,122	8,841	1,777	1,777	400	34,188
Value of raw material worked up £	919,416	1,138,511	628,385	296,680	129,421	45,925	3,158,538
Total value of output .. £	1,057,512	1,384,351	1,037,691	337,508	156,564	53,367	4,026,993
Value added in process of manufacture .. .. £	138,096	245,840	409,306	40,828	27,143	7,442	868,455

(ii) *Quantity and Value of Production.* The following tables shew the numbers of pigs killed and the quantities and values of the production of bacon-curing factories in each State for the years 1918-19 and 1919-20 :—

PRODUCTION OF BACON-CURING FACTORIES, 1918-19.

Particulars.		N.S.W. 1918-19.	Victoria. 1918-19.	Q'land. 1918.	S. Aust. 1918-19.	W. Aust. 1918.*a*	Tasmania. 1918.	C'wealth.
QUANTITY (,000 OMITTED).								
Bacon and ham	lbs.	13,929	18,343	15,703	5,276	2,335	909	56,495
Lard	lbs.	634	877	854	373	35	51	2,824
VALUE.								
Bacon and ham	£	727,943	968,700	897,683	224,148	103,371	46,996	2,968,841
Lard	£	26,593	32,900	33,392	13,286	1,226	1,757	109,154
Other products	£	68,735	106,310	241,132	21,521	1,154	4,352	443,204
PIGS KILLED.								
Number		167,296	201,770	190,623	63,864	(*b*)	10,577	634,130

(*a*) In Western Australia, a portion of the bacon and ham treated in factories is imported and subsequently smoked in that State. (*b*) Not available.

PRODUCTION OF BACON-CURING FACTORIES, 1919-20.

Particulars.		N.S.W. 1919-20.	Victoria. 1919-20.	Q'land. 1919.	S. Aust. 1919-20.	W. Aust. 1919.*a*	Tasmania. 1919.	C'wealth.
QUANTITY (,000 OMITTED).								
Bacon and ham ..	lbs.	14,938	16,675	11,639	4,935	2,940	809	51,936
Lard	lbs.	504	848	657	228	110	45	2,491
VALUE.								
Bacon and ham ..	£	920,686	1,030,000	761,658	292,408	147,868	47,374	3,199,994
Lard	£	34,623	42,400	31,111	11,292	6,510	2,007	127,943
Other products ..	£	84,920	99,930	244,922	33,808	1,532	3,986	469,098
PIGS KILLED.								
Number		171,742	182,320	153,202	55,982	(*b*)	9,634	572,880

(*a*) In Western Australia, a portion of the bacon and ham treated in factories is imported and subsequently smoked in that State. (*b*) Not available.

Bacon and ham and other pig products are dealt with more fully in Section IX., *Farmyard and Dairy Production.*

11. **Butter, Cheese, and Condensed Milk Factories.**—(i) *Details for each State.* The subjoined tables give particulars of butter, cheese, and condensed milk factories in each State during the years 1918–19 and 1919–20 :—

BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tasmania. 1918.	C'wealth.
Number of factories ..	161	180	137	44	5	31	558
Number of employees ..	1,168	1,918	919	218	27	119	4,369
Actual horse-power of engines employed	3,322	3,419	1,959	481	71	239	9,491
Approximate value of land and buildings .. £	310,771	370,170	147,688	44,519	8,587	25,413	907,148
Approximate value of plant and machinery .. £	399,705	416,105	231,075	31,286	6,378	22,493	1,107,127
Total amount of wages paid £	184,978	273,335	133,007	25,393	3,601	12,672	633,076
Value of fuel used £	49,007	65,199	19,571	4,429	461	1,458	140,125
Value of raw material worked up .. .. £	4,778,524	5,355,091	2,207,597	553,672	61,179	221,580	13,177,643
Total value of output £	5,390,459	6,056,342	2,737,602	605,263	67,718	263,011	15,120,395
Value added in process of manufacture .. £	611,935	701,251	530,005	51,591	6,539	41,431	1,942,752

BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1919–20.

Items.	N.S.W. *1919–20.*	Victoria. *1919–20.*	Q'land. *1919.*	S. Aust. *1919–20.*	W. Aust. *1919.*	Tasmania. *1919.*	C'wealth.
Number of factories ..	155	181	137	46	7	37	563
Number of employees ..	1,192	2,054	891	224	38	145	4,544
Actual horse-power of engines employed	3,562	3,369	2,248	478	167	278	10,102
Approximate value of land and buildings .. £	314,024	460,765	187,269	47,668	20,165	30,653	1,060,544
Approximate value of plant and machinery .. £	379,792	564,560	248,418	33,901	12,129	23,906	1,262,706
Total amount of wages paid £	220,828	338,507	138,367	27,275	4,900	12,464	742,341
Value of fuel used £	56,211	84,150	20,600	3,843	634	1,704	167,142
Value of raw material worked up .. .. £	5,197,584	5,539,896	2,137,936	566,702	75,209	220,351	13,737,678
Total value of output £	5,991,607	6,365,927	2,654,318	626,214	87,223	264,130	15,989,419
Value added in process of manufacture .. £	794,023	826,031	516,382	59,512	12,014	43,779	2,251,741

(ii) *Development of Factories, 1915 to 1919–20.* The following table shews the progress of the factories in this industry during the past five years :—

DEVELOPMENT OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES IN THE COMMONWEALTH, 1915 TO 1919-20.

Items.	1915.	1916.	1917.(a)	1918.	1918–19.	1919–20.
Number of factories	536	559	560	557	558	563
Number of employees	3,300	3,287	3,801	4,075	4,369	4,544
Actual horse-power of engines used ..	7,948	8,329	8,961	9,279	9,491	10,102
Approx. value of land and buildings £	683,413	784,686	756,454	823,176	907,148	1,060,544
Approx. value of plant and machinery £	852,260	881,267	983,066	998,841	1,107,127	1,262,706
Total amount of wages paid £	408,181	403,186	510,832	576,548	633,076	742,341
Value of fuel used .. £	71,796	70,058	101,496	116,228	140,125	167,142
Value of raw material worked up £	8,040,316	7,763,596	12,128,520	12,642,071	13,177,643	13,737,678
Value of final output .. £	9,203,041	8,974,067	14,151,299	14,322,025	15,120,395	15,989,419
Value added in process of manufacture £	1,162,725	1,210,471	2,022,779	1,679,954	1,942,752	2,251,741

(a) Including one margarine establishment in South Australia.

(iii) *Quantity and Value of Production.* The following tables shew the quantities and values of butter, cheese, and condensed milk produced, and the quantities of milk used in butter, cheese, and condensed milk factories in each State during the past two years :—

PRODUCTION OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1918-19.

Particulars.		N.S.W. 1918-19.	Vic. 1918-19.	Q'land. 1918.	S. Aust. 1918-19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
QUANTITY (,000 OMITTED).								
Butter	lbs.	61,943	61,124	30,660	6,875	889	3,740	165,240
Cheese	,,	4,560	5,025	8,573	2,411	..	426	20,995
Condensed and concentrated milk ..	,,	11,192	41,726	6,846	..	..	..	59,764
VALUE (,000 OMITTED).								
Butter	£	4,734	4,492	2,108	508	67	248	12,247
Cheese	£	211	213	345	97	..	15	881
Condensed and concentrated milk ..	£	289	1,177	195	..	..	..	1,661
MILK USED (,000 OMITTED).								
Butter factories ..	gals.	139,288	140,792	64,208	13,655	1,951	8,300	368,192
Cheese ,, ..	,,	4,723	4,977	8,482	2,362	..	446	20,990
Condensed milk factories	,,	3,111	11,270	1,222	..	..	..	15,609

PRODUCTION OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1919-20.

Particulars.		N.S.W. 1919-20.	Vic. 1919-20.	Q'land. 1919.	S. Aust. 1919-20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
QUANTITY (,000 OMITTED).								
Butter	lbs.	59,636	55,475	24,529	6,129	996	3,082	149,847
Cheese	,,	5,593	6,798	8,287	2,540	..	608	23,826
Condensed and concentrated milk ..	,,	12,970	38,044	9,170	..	..	..	60,184
VALUE (,000 OMITTED).								
Butter	£	5,004	4,514	1,992	521	87	230	12,348
Cheese	£	281	302	375	105	..	25	1,088
Condensed and concentrated milk ..	£	384	1,229	288	..	..	..	1,901
MILK USED (,000 OMITTED).								
Butter factories ..	gals.	137,145	128,581	49,722	12,186	2,120	7,519	337,273
Cheese ,, ..	,,	5,748	6,797	7,223	2,489	..	623	22,880
Condensed milk factories	,,	3,619	10,615	2,229	..	..	..	16,463

The butter, cheese, and condensed milk industries are dealt with more fully in Section IX., *Farmyard and Dairy Production.*

12. Meat and Fish Preserving, Ice and Refrigerating Works.—These industries are now of considerable importance in Australia. Large freezing works have been installed at many ports in the Commonwealth for the purpose of freezing produce chiefly for export, while insulated space for the carriage of frozen produce is provided by a number of steamship companies trading between Australia and other parts of the world.

Particlars regarding the export of frozen beef and mutton may be found on pages 222 and 225 hereof respectively.

The particulars given in the subjoined tables include ice-making and freezing works, also meat-canning factories, separate particulars for each item for all the States not being available.

MEAT AND FISH PRESERVING, ICE AND REFRIGERATING WORKS, 1918–19.

Items.	N.S.W. 1918–19.	Vic. 1918–19.	Q'land. 1918.	S.A. 1918–19.	W.A. 1918.	Tas. 1918.	C'wealth.
Number of factories	141	40	62	10	20	5	284
Number of employees	2,959	2,220	4,899	472	131	27	10,717
Actual horse-power of engines employed	7,751	6,641	11,314	1,352	1,144	72	28,274
Approx. value of land and buildings £	995,900	653,595	1,585,372	*a*	57,589	*a*	*b*3,493,332
Approx. value of plant and machinery £	827,364	365,860	908,077	*a*	59,240	*a*	*b*2,284,888
Total amount of wages paid during year .. .. .. £	365,122	320,682	844,479	*a*	22,699	*a*	*b*1,622,990
Value of fuel used .. £	74,027	68,764	99,196	19,392	10,327	712	272,438
Value of raw material worked up £	5,075,745	3,283,929	4,871,649	279,247	36,236	1,166	13,547,972
Total value of output .. £	6,151,588	3,939,584	6,146,350	484,420	82,149	9,748	16,813,839
Value added in process of manufacture £	1,075,843	655,655	1,274,701	205,173	45,913	8,582	3,265,867

(*a*) Information not available for publication.
(*b*) Including South Australia and Tasmania.

MEAT AND FISH PRESERVING, ICE AND REFRIGERATING WORKS, 1919–20.

Items.	N.S.W. 1919–20.	Vic. 1919–20.	Q'land. 1919.	S.A. 1919–20.	W.A. 1919.	Tas. 1919.	C'wealth.
Number of factories	128	48	80	18	21	10	280
Number of employees	2,466	2,640	4,259	501	483	63	10,412
Actual horse-power of engines employed	8,092	7,364	10,955	1,368	2,544	235	30,558
Approx. value of land and buildings £	1,035,756	683,165	1,495,878	*a*	494,933	*a*	*b*3,992,620
Approx. value of plant and machinery £	876,192	523,915	891,047	*a*	276,974	*a*	*b*2,714,424
Total amount of wages paid during year .. .. .. £	347,227	531,128	702,394	*a*	90,316	*a*	*b*1,767,906
Value of fuel used .. £	95,751	89,493	94,184	22,134	26,398	3,584	331,544
Value of raw material worked up £	5,647,804	4,347,782	3,977,635	404,606	154,010	5,298	14,537,135
Total value of output .. £	6,539,844	5,339,787	5,664,945	594,103	236,705	33,936	18,409,320
Value added in process of manufacture £	892,040	992,005	1,687,310	189,497	82,695	28,638	3,872,185

(*a*) Information not available for publication.
(*b*) Including South Australia and Tasmania.

The following tables give particulars, so far as available, of meat tinned during the years 1918–19 and 1919–20 :—

MEAT PRESERVING WORKS—OUTPUT, 1918–19.

Output.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Tinned meat .. cwt.	215,971*a*	204,160*b*	308,730*c*	11,576*d*	..	..	740,437

(*a*) Also 33,226 cwt. tinned rabbits. (*b*) Also 9,625 cwt. tinned rabbits. (*c*) Also 1,940 cwt. salted meat. (*d*) Large numbers of rabbits are tinned in South Australia, but particulars are not available for publication.

MEAT PRESERVING WORKS—OUTPUT, 1919-20.

Output.	N.S.W. 1919-20.	Victoria. 1919-20.	Q'land. 1919.	S. Aust. 1919-20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
Tinned meat .. cwt.	167,589	a167,435	b247,572	c7,772	..	..	590,368

(a) Also 7,580 cwt. tinned rabbits. (b) Also 113 cwt. salted meat. (c) Large numbers of rabbits are tinned in South Australia, but particulars are not available for publication.

Large quantities of rabbits, hares, and poultry, for which, however, complete returns are not available, were treated in freezing works. Exclusive of Victoria, for which State particulars are not available, the returns shew that 118,207 tons of ice, valued at £263,606, were manufactured in the Commonwealth in 1919-20.

Full particulars of quantities and value of beef, mutton, and lamb preserved by cold process, exported from the Commonwealth during a series of years, will be found in Section VII., *Pastoral Production.*

13. **Biscuit Factories.**—The following tables give particulars regarding establishments at which the manufacture of biscuits, cakes, etc., was carried on in each State during the years 1918-19 and 1919-20 :—

BISCUIT, ETC., FACTORIES, 1918-19.

Items.	N.S.W. 1918-19.	Victoria. 1918-19.	Q'land. 1918.	S. Aust. 1918-19.	W. Aust. 1918.c	Tas. 1918.	C'wealth.
Number of factories	9	7	22	3	6	3	50
Number of employees	1,749	1,575	547	174	190	124	4,359
Actual horse-power of engines employed	1,274	378	332	104	355	63	2,506
Approximate value of land and buildings .. .. £	133,824	80,390	71,571	a	10,740	a	b338,583
Approximate value of plant and machinery .. .. £	112,942	64,460	46,829	a	12,452	a	b256,719
Total amount of wages paid during year .. .. £	173,568	149,865	65,707	a	13,766	a	b425,107
Value of fuel used .. £	17,641	15,297	3,333	1,065	1,801	821	40,858
Value of raw material worked up £	725,284	546,254	168,145	44,864	51,795	28,490	1,564,832
Total value of output .. £	1,071,757	847,256	292,777	71,269	81,913	50,606	2,415,578
Value added in process of manufacture .. .. £	346,473	301,002	124,632	26,405	30,118	22,116	850,746

(a) Information not available for publication.
(b) Including South Australia and Tasmania.
(c) Including one butterine and margarine, and one macaroni establishment.

BISCUIT, ETC., FACTORIES, 1919-20.

Items.	N.S.W. 1919-20.	Victoria. 1919-20.	Q'land. 1919.	S. Aust. 1919-20.	W. Aust. 1919.c	Tas. 1919.	C'wealth.
Number of factories	9	7	22	3	10	3	54
Number of employees	1,904	1,607	613	173	292	139	4,728
Actual horse-power of engines employed	1,311	399	318	109	395	51	2,583
Approximate value of land and buildings .. .. £	134,162	82,255	77,930	a	26,630	a	b363,055
Approximate value of plant and machinery .. .. £	119,390	68,855	49,500	a	14,434	a	b272,632
Total amount of wages paid during year .. .. £	189,187	173,787	73,864	a	25,127	a	b487,609
Value of fuel used .. £	21,970	21,299	3,012	2,279	2,906	786	52,252
Value of raw material worked up £	817,128	682,532	193,758	72,098	88,851	36,482	1,890,849
Total value of output .. £	1,246,915	1,034,460	345,702	102,474	135,620	60,501	2,926,672
Value added in process of manufacture .. .. £	429,787	351,928	151,944	31,376	46,769	24,019	1,035,823

(a) Information not available for publication.
(b) Including South Australia and Tasmania.
(c) Including one butterine and margarine establishment.

14. **Jam and Fruit Preserving, Pickles, Sauces, and Vinegar.**—(i) *Details for each State.* The jam and fruit preserving industry has increased in importance of late years, consequent on the extension of fruit-growing. As an exporting industry it is comparatively recent, but is of increasing value, and has shewn considerable expansion during

the past five years. During the year ended 30th June, 1920, 44,793,409 lbs. of jams and jellies, valued at £1,218,997, were exported from the Commonwealth. The subjoined tables give particulars of factories at which these industries were carried on in each State during the years 1918–19 and 1919–20. Separate returns for the different branches of the industry are not available for most of the States.

JAM AND FRUIT PRESERVING, PICKLES, SAUCES, AND VINEGAR FACTORIES, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1916.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	42	34	20	23	7	17	143
Number of employees	1,393	2,723	357	406	93	1,202	6,174
Actual horse-power of engines employed	448	723	87	117	72	498	1,945
Approximate value of land and buildings .. .. £	230,957	145,045	20,319	40,849	6,715	84,687	528,572
Approximate value of plant and machinery .. .. £	133,382	76,510	15,605	16,650	3,171	38,758	284,085
Total amount of wages paid during year .. .. £	133,135	251,976	28,896	35,074	6,823	114,388	570,291
Value of fuel used .. £	9,377	21,476	1,657	3,435	486	8,046	44,477
Value of raw material worked up £	905,715	1,413,368	117,980	188,312	17,098	684,073	3,326,546
Total value of output .. £	1,286,698	1,961,670	172,522	263,548	26,214	952,374	4,663,026
Value added in process of manufacture .. .. £	380,983	548,302	54,542	75,236	9,116	268,301	1,336,480

JAM AND FRUIT PRESERVING, PICKLES, SAUCES, AND VINEGAR FACTORIES, 1919–20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
Number of factories	43	42	18	20	7	22	152
Number of employees	1,857	3,117	358	425	81	1,136	6,974
Actual horse-power of engines employed	796	813	144	135	70	568	2,526
Approximate value of land and buildings .. .. £	257,048	168,580	21,099	38,912	5,775	84,938	576,302
Approximate value of plant and machinery .. .. £	149,664	112,860	17,438	26,766	4,080	37,741	348,549
Total amount of wages paid during year .. .. £	189,027	324,438	35,836	45,094	5,568	131,510	731,473
Value of fuel used .. £	15,566	23,256	1,814	4,655	606	12,051	57,848
Value of raw material worked up £	1,167,810	1,530,155	145,571	259,927	32,147	621,995	3,757,611
Total value of output .. £	1,702,419	2,258,454	218,671	377,751	46,013	884,652	5,487,960
Value added in process of manufacture .. .. £	534,609	728,299	73,100	117,824	13,866	262,657	1,730,349

(ii) *Production of Factories.* The following tables shew the quantities and values of jams, pickles, and sauces manufactured in each State during the past two years:—

QUANTITY AND VALUE OF JAMS, PICKLES, AND SAUCES MANUFACTURED, 1918–19.

Particulars.		N.S.W. *1918–19.*	Victoria. *1918–19.*	Q'land. *1918.*	S. Aust. *1918–19.*	W. Aust. *1918.*	Tas. *1918.*	C'wealth.
				QUANTITY (,000 OMITTED).				
Jams	lbs.	34,647	55,504	2,783	8,369	*b*	40,987	*c*142,290
Fruit, preserved ..	lbs.	5,237	14,922	3,934	3,508	*b*	7,572	*c*35,171
Pickles	pints	2,223	4,058	*a*	204	66	20	*c*6,571
Sauces	pints	3,646	4,913	428	1,022	360	90	10,459
				VALUE.				
Jams	£	748,074	1,149,342	64,253	153,520	*b*	780,616	*c*2,895,805
Fruit, preserved ..	£	196,057	535,696	57,411	56,764	*b*	162,002	*c*1,006,930
Pickles	£	71,422	123,881	14,212	8,226	2,330	729	220,900
Sauces	£	118,281	152,751	8,916	29,194	9,336	2,171	320,649

(*a*) Information not available. (*b*) Information not available for publication. (*c*) Incomplete.

QUANTITY AND VALUE OF JAMS, PICKLES, AND SAUCES MANUFACTURED, 1919-20.

Particulars.		N.S.W. 1919-20.	Victoria. 1919-20.	Q'land. 1919.	S. Aust. 1919-20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
QUANTITY (,000 OMITTED).								
Jams	lbs.	34,560	*36,227	4,574	8,465	731	35,731	120,288
Fruit, preserved ..	lbs.	10,448	20,335	2,964	0,441	a	5,954	b49,142
Pickles	pints	2,507	1,874	300	239	115	18	5,143
Sauces	pints	4,511	6,547	447	1,721	356	66	13,648
VALUE.								
Jams	£	944,919	*990,488	106,024	168,102	16,246	748,496	2,974,275
Fruit, preserved ..	£	317,299	617,576	67,069	124,863	a	121,141	b1,247,948
Pickles	£	86,341	62,811	13,942	9,946	3,837	654	177,031
Sauces	£	165,069	239,530	11,768	54,553	10,148	1,669	482,752

(a) Information not available. (b) Exclusive of Western Australia.

(iii) *Development of Factories, 1915 to 1919-20.* The following table furnishes particulars of jam and fruit preserving establishments in the Commonwealth for the last six years :—

DEVELOPMENT OF JAM AND FRUIT PRESERVING, PICKLES, SAUCES, AND VINEGAR FACTORIES, 1915 TO 1919-20.

Items.	1915.	1916.	1917.	1918.	1918-19.	1919-20.
Number of factories ..	128	139	150	146	143	152
Number of employees	4,393	4,669	5,323	6,024	6.174	6.974
Actual horse-power of engines employed	1,567	1,714	2,059	1,991	1,945	2,526
Approx. value of land and buildings £	358,144	367,277	426,919	516,113	528,572	576,302
Approx. value of plant and machinery £	178,182	185,529	209,548	274,555	284,085	348,549
Total amount of wages paid £	326,442	365,928	443,793	538,344	570,291	731,473
Value of fuel used .. £	21,965	24,941	32,726	36,995	44,477	57,848
Value of raw material worked up £	1,602,465	1,919,102	2,271,966	2,930,403	3,326,546	3,757,611
Total value of output .. £	2,417,111	2,775,635	3,284,844	4,047,912	4,663,026	5,487,960
Value added in process of manufacture £	814,646	856,533	1,012,878	1,117,509	1,336,480	1,730,349

The progression of the jam and fruit preserving industry has been very marked during the past five years. Since 1915, the number of factories has been considerably enlarged, necessitating a 50 per cent. increase in the number of employees with a corresponding increase in the amount of wages paid, while the value of the output and the added value have been more than doubled.

16. **Confectionery.**—(i) *Details for each State.* The following tables reveal the position of the confectionery industry. Its growth will be apparent when it is stated that at the close of 1900 there were in New South Wales only 16 establishments, with 706 employees, and in Victoria 16 establishments, employing 731 persons, the plant and machinery in the former State being valued at £2,815, and in the latter at £19,070.

CONFECTIONERY FACTORIES 1918-19.

Items.	N.S.W. 1918-19.	Victoria. 1918-19.	Q'land. 1918.	S. Aust. 1918-19.	W.A. 1918.	Tas. 1918.	C'wealth.
Number of factories	64	63	8	12	5	4	156
Number of employees	2,374	3,103	542	436	230	25	6,710
Actual horse-power of engines employed	1,064	1,751	153	301	165	29	3,503
Approx. value of land and buildings £	433,552	214,795	34,973	43,240	37,530	11,590	775,670
Approx. value of plant and machinery £	*255,056*	*220,610*	*21,584*	*40,171*	*22,179*	*2,875*	*562,475*
Total amount of wages paid during year .. .. .. £	253,696	294,924	50,074	33,764	19,330	2,891	654,818
Value of fuel used .. £	22,488	35,434	1,822	4,384	10,632	225	74,995
Value of raw material worked up £	992,616	1,076,104	88,386	131,216	54,240	12,400	2,354,962
Total value of output .. £	1,440,468	1,661,680	183,808	201,791	91,301	18,100	3,597,148
Value added in process of manufacture £	447,852	585,576	95,422	70,575	37,061	5,700	1,242,186

CONFECTIONERY FACTORIES, 1919–20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W.A. 1919.	Tas. 1919.	C'wealth.
Number of factories	75	76	8	11	5	6	181
Number of employees	2,896	3,035	641	448	256	47	7,323
Actual horse-power of engines employed	1,147	2,218	149	377	155	21	4,067
Approx. value of land and buildings £	466,006	278,460	42,301	45,534	40,059	5,855	878,305
Approx. value of plant and machinery £	284,257	286,900	24,421	42,888	22,671	3,225	664,452
Total amount of wages paid during year £	320,802	320,249	51,198	37,887	21,480	3,822	755,238
Value of fuel used £	24,834	41,840	1,809	5,079	1,251	221	75,084
Value of raw material worked up £	1,381,012	1,171,119	88,898	174,860	66,934	15,036	2,897,859
Total value of output £	2,112,273	1,878,436	182,707	268,983	93,471	23,567	4,559,437
Value added in process of manufacture £	731,261	707,317	93,809	94,123	26,537	8,531	1,661,578

(ii) *Development of Confectionery Factories, 1915 to 1919–20.* The progress of the confectionery industry during the past five years may be seen from the following table :—

DEVELOPMENT OF CONFECTIONERY FACTORIES, 1915 TO 1919–20.

Items.	1915.	1916.	1917.	1918.	1918–19.	1919–20.
Number of factories	*115*	*117*	*131*	*147*	*156*	*181*
Number of employees	4,411	4,570	5,266	5,856	6,710	7,323
Actual horse-power of engines employed	2,268	2,181	2,802	3,277	3,503	4,067
Approx. value of land and buildings £	457,882	462,555	495,488	554,099	775,670	878,305
Approx. value of plant and machinery £	284,916	294,351	354,539	419,986	562,475	664,452
Total amount of wages paid during year £	345,938	377,310	463,067	515,774	654,818	755,238
Value of fuel used £	26,543	27,662	45,304	63,674	74,095	75,084
Value of raw material worked up £	1,224,464	1,406,451	1,586,353	1,894,187	2,354,062	2,897,859
Total value of output £	1,963,299	2,173,675	2,504,732	*2,969,573*	*3,507,148*	4,559,437
Value added in process of manufacture £	738,835	767,224	918,379	1,075,386	1,242,186	1,661,578

The embargo placed on the importation of luxuries during the war period was responsible for a considerable expansion of the confectionery industry in Australia.

During the past five years the number of factories increased by 57 per cent., the number of employees by 66 per cent., and the actual horse-power of engines used by 79 per cent., while the values of the salaries and wages paid, and of the final output shewed increases amounting to 118 and 132 per cent. respectively.

16. **Flour Mills.**—The following tables shew the position of the flour-milling industry :—

FLOUR MILLS, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.a	S. Aust. 1918–19. a	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	63	53	23	45	16	10	210
Number of employees	1,326	1,063	297	673	392	104	3,855
Actual horse-power of engines employed	5,482	4,507	1,006	3,051	2,135	498	16,679
Approx. value of land and buildings £	413,870	233,000	80,699	141,250	121,371	38,150	1,028,340
Approx. value of plant and machinery £	411,637	305,000	84,713	169,987	119,373	19,800	1,110,510
Total amount of wages paid during year £	229,690	169,233	44,324	109,205	61,696	13,210	627,358
Value of fuel used £	47,619	45,012	5,378	32,236	13,143	2,262	145,650
Value of raw material worked up £	4,650,713	4,020,860	610,445	1,556,375	1,369,827	278,151	12,486,371
Total value of output £	5,171,446	4,656,403	734,227	1,797,359	1,546,261	317,011	14,222,707
Value added in process of manufacture £	520,733	635,543	123,782	240,984	176,434	38,860	1,736,336

(a) The manufacture of cornflour, oatmeal, etc., was also carried on in some of these establishments.

FLOUR MILLS, 1919–20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.*a*	S. Aust. 1919–20. *a*	W. Aust. 1919.	Tas. 1919.	C'wealth.
Number of factories	58	51	22	45	17	8	201
Number of employees	1,129	1,064	330	705	407	98	3,733
Actual horse-power of engines employed	5,845	4,924	1,030	3,149	2,667	476	18,091
Approx. value of land and buildings £	470,638	243,850	77,731	157,532	130,462	29,600	1,109,813
Approx. value of plant and machinery .. .. £	471,536	347,835	85,694	199,001	126,931	12,275	1,243,272
Total amount of wages paid during year .. .. £	223,236	189,224	47,677	114,019	74,768	14,731	663,655
Value of fuel used .. £	46,185	50,778	6,347	30,894	13,514	1,871	149,589
Value of raw material worked up £	5,149,602	5,318,773	747,010	2,127,859	1,722,193	367,901	15,433,338
Total value of output .. £	5,973,792	6,082,741	887,503	2,432,257	1,987,019	407,053	17,770,365
Value added in process of manufacture .. .. £	824,190	763,968	140,493	304,398	264,826	39,152	2,337,027

(*a*) The manufacture of cornflour, oatmeal, etc., was also carried on in some of these establishments.

The production of flour by the mills in each State of the Commonwealth in the years 1915 to 1919–20 was as follows :—

FLOUR MILLS—PRODUCTION, 1915 TO 1919-20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Tons.*a*	Tons.*a*	Tons.*a*	Tons.*a*	Tons.*a*	Tons.*a*	Tons.*a*
1915 ..	266,302*b*	134,401	39,734	49,404	32,396	19,573	541,810
1916*c* ..	254,393	134,401	42,559	49,404	70,912	25,369	577,038
1917*d* ..	331,233	263,095	46,244	105,925	102,300	21,178	869,975
1918*d* ..	355,843	311,450	45,589	135,882	119,876	17,121	985,761
1918–19*e* ..	377,107	347,841	45,589	138,734	119,876	17,121	1,046,268
1919–20*e* ..	348,691	353,683	49,300	134,727	141,516	22,311	1,050,228

(*a*) Tons of 2,000 lbs. (*b*) Year ended 30th June, 1915. (*c*) See note (*a*) first table this section. (*d*) See note (*b*) first table this section. (*e*) See note (*c*) first table this section.

The total production of flour for the Commonwealth for the last year, viz., 1,050,228 tons, was valued at £14,076,083; in addition 448,573 tons of bran and pollard, valued at £3,247,685, were made. The total quantity of wheat ground was 50,881,516 bushels.

17. **Sugar Mills.**—The following tables shew the position of the cane-crushing branch of the sugar-making industry. This industry is carried on in Queensland and New South Wales, the only States of the Commonwealth in which sugar-cane is grown.

SUGAR MILLS, 1918-19.

Items.	N.S.W. 1918–19.	Queensland. 1918.	Total.
Number of factories	3	42	45
Number of employees	432	5,214	5,646
Actual horse-power of engines employed	2,273	15,146	17,419
Approximate value of land and buildings £	106,112	454,023	560,135
Approximate value of plant and machinery £	424,450	3,211,336	3,635,786
Total amount of wages paid during year .. £	45,818	623,736	669,554
Value of fuel used .. .. .. £	5,095	67,968	73,063
Value of raw material worked up .. £	180,336	2,733,268	2,913,604
Total value of output .. .. .. £	271,270	4,037,706	4,308,976
Value added in course of manufacture .. £	90,934	1,304,438	1,395,372

SUGAR MILLS, 1919-20.

Items.		N.S.W. 1919–20.	Queensland. 1919.	Total.
Number of factories		3	32	35
Number of employees		419	4,098	4,517
Actual horse-power of engines employed		2,273	18,230	20,503
Approximate value of land and buildings..	£	105,908	421,441	527,349
Approximate value of plant and machinery	£	423,632	2,894,823	3,318,455
Total amount of wages paid during year ..	£	42,743	497,319	540,062
Value of fuel used	£	5,263	46,045	51,308
Value of raw material worked up ..	£	163,858	2,342,072	2,505,930
Total value of output	£	238,414	3,705,593	3,944,007
Value added in course of manufacture ..	£	74,556	1,363,521	1,438,077

The product of the sugar mill is raw sugar and molasses, the former being sent to the refineries in different parts of Australia for further treatment. Part of the molasses produced is used in distillation, part is prepared for human consumption, part is turned into food cake for cattle, and part is used for manuring land, but a considerable quantity is run to waste. The following tables shew the progress of this industry in each State from the dates at which information is first obtainable :—

SUGAR MILLS, NEW SOUTH WALES, 1870 TO 1919-20.

Items.	1870.	1877.	1886.	1896.	1901.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
No. of factories	27	50	64	23	12	3	3	3	3	3
No. of employees	..	1,065	2,259	1,475	695	463	427	367	432	419
Cane crushed tons	a	a	a	a	a	157,748	143,558	174,881	105,234	91,321
Sugar produced tons	677	7,537	13,750	28,557	19,519	19,144	16,064	19,875	12,278	10,887
Molasses produced gals.	..	345,543	507,000	2,520,580	1,300,909	1,099,000	781,870	975,770	586,925	494,600

(a) Not available.

The reduction in the number of New South Wales mills is due chiefly to the tendency towards concentration of cane-crushing in mills fitted with modern machinery, and the consequent closing of the small home mill. On the north coast of New South Wales some land formerly devoted to sugar-growing has been turned into pasture in connexion with the dairying industry.

SUGAR MILLS, QUEENSLAND, 1868 TO 1919.

Items.	1868.	1876.	1886.	1896.	1901.	1911.	1917.	1918.	1919.
No. of factories ..	10	70	118	63	52	49	47	42	32
No. of employees ..	..	b	b	3,796	b	4,295	5,500	5,214	4,098
Cane crushed tons	..	7,245c	40,758c	66,640c	78,160c	1,534,451	2,704,211	1,674,829	1,258,760
Sugar produced, tons	619	8,214	59,225	100,774	120,858	173,296	307,714	189,978	162,186
Molasses—									
Sold to distillers and others, gals.						2,393,669	1,558,407	1,662,454	916,291
Used as fodder gals.						769,564	1,464,084	1,602,962	1,517,167
Used as manure gals.	b	b	b	b	b	223,000	627,000	109,000	141,475
Run to waste or burnt a gals.						1,847,233	6,986,812	3,501,668	3,347,655
In stock ..						1,197,626	878,382	923,307	933,542
Total molasses a gals.	68,622	416,415	1,784,286	2,195,470	3,679,952	6,451,192	11,514,686	7,799,391	6,855,830

(a) Quantity recorded; large quantities run to waste of which no record is kept. (b) No record. (c) Acres crushed.

Information regarding the cultivation of sugar-cane may be found in the section of this book dealing with Agricultural Production. (See pages 283 to 286.)

18. **Sugar Refineries.**—The establishment of the sugar-refining industry considerably antedates the establishment of the sugar-milling industry, the raw material operated upon being originally brought chiefly from Mauritius and the East. In 1919–20 there were two sugar refineries in each of the States of Victoria and Queensland, and one in each of the States of New South Wales and South Australia. The returns for the individual States cannot be disclosed.

In the six refineries in the Commonwealth, an average number of 1,705 hands was employed during the year. The approximate value of land and buildings was £530,612, of plant and machinery, £1,163,675; and the total amount of wages paid during the year was £284,013. The value of all materials used in sugar refineries was £6,346,660, while the total output reached £7,498,643. The amount of crude sugar used was 247,763 tons, and of refined sugar produced 238,428 tons, valued at £7,435,245.

19. **Breweries.**—(i) *Details for each State.* The following tables give particulars of breweries in each State for the past two years :—

BREWERIES, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.a	Tas. 1918.	C'wealth.
Number of breweries	18	17	10	8	11	4	68
Number of employees	950	940	518	336	488	123	3,355
Actual horse-power of engines employed	2,880	3,717	1,042	959	1,173	151	9,922
Approximate value of land and buildings .. £	746,900	473,680	141,146	92,327	176,217	61,950	1,692,220
Approximate value of plant and machinery .. £	786,312	434,040	145,482	80,616	163,914	44,236	1,654,600
Total amount of wages paid during year .. £	199,690	194,195	65,131	68,399	100,942	20,213	668,579
Value of fuel used .. £	50,141	41,400	10,626	10,652	13,019	2,812	128,650
Value of raw material worked up £	906,589	719,982	158,549	175,014	220,591	34,762	2,215,487
Total value of output £	1,822,375	1,476,335	862,773	360,139	519,283	143,744	5,184,649
Value added by processes of manufacture .. .. £	915,786	756,353	704,224	185,125	298,692	108,982	2,969,162

(a) Includes malting.

BREWERIES, 1919–20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.a	Tas. 1919.	C'wealth.
Number of breweries	17	17	10	8	12	4	68
Number of employees	1,100	1,016	548	362	546	138	3,710
Actual horse-power of engines employed	5,845	4,924	1,030	3,149	2,667	476	18,091
Approximate value of land and buildings .. £	470,638	243,850	77,731	157,532	130,462	29,600	1,109,813
Approximate value of plant and machinery .. £	471,536	347,835	85,694	190,001	128,931	12,275	1,249,272
Total amount of wages paid during year .. £	256,692	240,407	111,450	89,347	108,315	25,568	831,779
Value of fuel used .. £	56,010	53,831	18,472	18,411	14,427	3,458	164,609
Value of raw material worked up £	1,082,456	878,324	218,034	254,882	283,452	49,453	2,766,601
Total value of output £	2,373,895	1,830,548	1,137,660	469,193	605,575	214,638	6,631,409
Value added by processes of manufacture .. .. £	1,291,439	952,224	919,626	214,311	322,123	171,185	3,870,908

(ii) *Production and Materials Used.* The following tables shew the quantities and values of ale and stout brewed and the quantities of raw materials used in each State during the years 1918–19 and 1919–20 :—

PRODUCTION AND MATERIALS USED IN BREWERIES, 1918–19.

Particulars.		N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tasmania. 1918.	C'wealth.
ALE AND STOUT BREWED.								
Quantity	gallons	24,302,216	20,962,736	6,757,770	5,793,699	5,361,712	1,643,267	64,821,400
Value *a* ..	£	1,772,037	1,476,395	862,773	356,011	509,763	148,753	5,120,672
RAW MATERIALS USED.								
Malt ..	bush.	737,229	625,774	206,992	151,585	163,929	68,933	1,954,442
Hops ..	lbs.	876,182	722,594	287,748	186,606	212,097	103,690	2,388,917
Sugar ..	cwt.	120,780	112,076	43,829	32,004	28,220	6,362	343,271
RAW MATERIALS USED PER 1,000 GALLONS OF ALE AND STOUT PRODUCED.								
Malt ..	bush.	30.34	29.85	30.63	26.16	30.57	41.95	30.15
Hops ..	lbs.	36.05	34.47	42.58	32.21	39.56	63.10	36.85
Sugar ..	cwt.	4.97	5.35	6.49	5.52	5.26	3.87	5.30

(*a*) Exclusive of excise duty.

PRODUCTION AND MATERIALS USED IN BREWERIES, 1919–20.

Particulars.		N.S.W. 1919–20.	Victoria, 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tasmania. 1919.	C'wealth.
ALE AND STOUT BREWED.								
Quantity	gallons	26,485,407	22,610,200	8,265,333	6,567,609	5,774,924	1,927,135	71,630,608
Value *a*	£	2,247,873	1,830,548	1,137,820	464,816	592,419	214,047	6,487,523
RAW MATERIALS USED.								
Malt ..	bush.	872,452	720,515	258,243	178,252	175,603	79,018	2,284,083
Hops ..	lbs.	906,944	769,765	381,467	222,034	220,872	117,496	2,618,098
Sugar ..	cwt.	114,620	110,020	47,989	33,499	29,022	7,550	342,700
RAW MATERIALS USED PER 1,000 GALLONS OF ALE AND STOUT PRODUCED.								
Malt ..	bush.	32.94	31.87	31.24	27.14	30.41	41.00	31.89
Hops ..	lbs.	34.24	34.05	46.16	33.81	38.16	60.97	36.55
Sugar ..	cwt.	4.33	4.87	5.81	5.10	5.03	3.92	4.78

(*a*) Exclusive of excise duty.

(iii) *Development of Breweries, 1915 to 1919–20.* The following table shews the progress of this industry during the past five years :—

DEVELOPMENT OF BREWERIES FROM 1915 TO 1919–20.

Items.	1915.	1916.	1917.	1918.	1918–19.	1919–20.
Number of breweries	90	86	77	72	68	68
Number of employees	3,295	3,179	3,191	3,268	3,355	3,710
Actual horse-power of engines used ..	8,430	8,882	8,955	9,602	9,922	18,091
Approx. value of land and buildings £	1,872,535	1,864,712	1,901,486	1,676,567	1,692,220	1,109,813
Approx. value of plant and machinery £	1,452,639	1,518,846	1,565,914	1,600,734	1,654,600	1,243,272
Total amount of wages paid £	548,632	560,004	594,687	632,076	668,579	831,779
Value of fuel used .. .. £	81,252	87,375	104,629	120,381	128,650	160,609
Value of raw material worked up £	1,494,974	1,548,615	1,637,568	1,959,232	2,215,487	2,760,601
Value of final output .. £	3,869,786	3,872,044	3,952,647	4,741,744	5,184,649	6,631,409
Value added in process of manufacture £	2,374,812	2,323,429	2,315,079	2,782,512	2,969,162	3,870,808

The main feature in the history of the brewing industry, which was established at an early date in Australia, has been the change from the small local brewery in every township of moderate size to the large centralised city brewery. This, however, has not been so much in evidence during the period embraced in the above table, the reduction of the number of establishments during recent years being mainly due to several large amalgamations. The total value of output of breweries in the Commonwealth increased from £3,869,786 in 1915 to £6,631,409 in 1919–20, while the quantity of ale and stout brewed during the same period increased from 61,550,491 to 71,630,608 gallons. The average production per head of mean population likewise increased from 12.43 gallons per head for 1915 to 13.72 gallons for 1919–20.

20. **Distilleries.**—The subjoined tables give particulars of distilleries in four States. There are no distilleries in Western Australia or Tasmania.

DISTILLERIES, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of distilleries	4	11	3	18	..	..	36
Number of employees	35	264	40	104	..	..	443
Actual horse-power of engines employed	139	378	93	271	..	..	881
Approx. value of land and buildings £	21,263	160,750	12,598	38,019	..	..	232,630
Approx. value of plant and machinery £	68,989	112,985	21,157	36,797	..	..	239,928
Total amount of wages paid during year £	6,033	47,441	7,021	14,464	..	..	74,959
Value of fuel used .. .. £	3,244	12,792	4,466	5,447	..	..	25,949
Value of raw materials worked up £	47,797	164,051	16,759	143,445	..	..	372,052
Total value of output .. £	72,000	295,580	112,885	211,103	..	..	691,568
Value added in process of manufacture £	24,203	131,529	96,126	67,658	..	..	319,516

DISTILLERIES, 1919–20.

Items.	N.S.W. 1919–20.	Vic. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
Number of distilleries	4	11	3	18	..	..	36
Number of employees	35	193	34	119	..	..	381
Actual horse-power of engines employed	136	387	91	304	..	..	918
Approx. value of land and buildings £	22,710	168,215	13,098	39,426	..	..	243,449
Approx. value of plant and machinery £	69,153	115,975	22,473	42,488	..	..	250,089
Total amount of wages paid during year £	7,240	35,654	6,462	16,085	..	..	65,441
Value of fuel used .. .. £	2,970	8,066	3,086	5,859	..	..	19,981
Value of raw materials worked up £	39,568	122,732	14,504	143,524	..	..	320,328
Total value of output .. £	66,331	219,341	48,546	210,333	..	..	544,551
Value added in process of manufacture £	26,768	96,609	34,042	66,809	..	..	224,228

The total quantity of rum distilled during the year was 50,854, of whisky 278,152, of brandy 174,270, of gin 63,534, and of other spirits, including rum distilled in Queensland, separate particulars for which are not available, 2,431,307 proof gallons. The materials used comprised 422,207 cwt. of molasses, and 4,154,025 gallons of wine.

21. **Tobacco, Cigars, and Cigarettes.**—(i) *Details for each State.* During the years 1918–19 and 1920 there were thirty-seven establishments in which the manufacture of tobacco, cigars, and cigarettes was carried on. There were no factories engaged in this industry in Tasmania.

TOBACCO, CIGAR, AND CIGARETTE FACTORIES, 1918–19.

Items.	N.S.W. 1918–19.	Vic. 1918–19.	Q'land. 1918.	S.A. 1918–19.	W.A. 1918.	Tas. 1918.	C'wealth.
Number of factories	16	14	2	2	3	..	37
Number of employees	1,973	1,784	65	47	39	..	3,908
Actual horse-power of engines employed	557	364	26	..	1	..	948
Approx. value of land and buildings £	232,128	174,455	*a*	*a*	2,744	..	*b*420,124
Approx. value of plant and machinery £	147,074	113,815	*a*	*a*	590	..	*b*270,953
Total amount of wages paid during year £	238,150	238,841	*a*	*a*	2,573	..	*b*490,172
Value of fuel used .. .. £	8,441	4,429	*a*	*a*	2	..	*b*13,147
Value of raw material worked up £	1,912,970	1,167,746	*a*	*a*	4,645	..	*b*3,110,373
Total value of output .. £	2,513,839	1,735,678	*a*	*a*	10,383	..	*b*4,306,140
Value added in process of manufacture £	600,869	567,932	*a*	*a*	5,738	..	*b*1,195,767

(*a*) Not available for publication. (*b*) Including Queensland and South Australia.

TOBACCO, CIGAR, AND CIGARETTE FACTORIES, 1919–20.

Items.	N.S.W. 1919–20.	Vic. 1919–20.	Q'land. 1919.	S.A. 1919–20.	W.A. 1919.	Tas. 1919.	C'wealth.
Number of factories	16	14	2	2	3	..	37
Number of employees	2,400	1,943	64	39	43	..	4,489
Actual horse-power of engines employed	667	440	36	..	1	..	1,144
Approx. value of land and buildings £	242,346	176,900	*a*	*a*	2,744	..	*b*432,247
Approx. value of plant and machinery £	183,462	120,510	*a*	*a*	545	..	*b*313,619
Total amount of wages paid during year £	331,324	289,027	*a*	*a*	3,063	..	*b*633,694
Value of fuel used .. .. £	10,608	5,263	*a*	*a*	20	..	*b*16,200
Value of raw material worked up £	2,948,948	1,577,085	*a*	*a*	5,397	..	*b*4,559,110
Total value of output .. £	3,822,181	2,579,323	*a*	*a*	13,285	..	*b*6,466,649
Value added in process of manufacture £	873,233	1,002,238	*a*	*a*	7,888	..	*b*1,907,539

(*a*) Not available for publication. (*b*) Including Queensland and South Australia.

(ii) *Quantities of Goods Produced, and Tobacco Leaf Used.* The following tables shew the quantities of goods produced in tobacco factories in each State, and the quantities of imported and Australian-grown leaf used :—

PRODUCTION OF TOBACCO FACTORIES AND QUANTITY OF LEAF USED, 1918–19.

Particulars.		N.S.W. 1918–19.	Vic. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth. *b*
QUANTITY (,000 OMITTED).								
Manufactured tobacco	..lbs.	5,146	5,842	*a*	..	8	..	10,991
Cigars	lbs.	132	309	..	*a*	*a*	..	441
	No.	12,011	27,974	..	*a*	*a*	..	39,985
Cigarettes ..	lbs.	3,487	289	..	..	*a*	..	3,728
	No.	1,609,846	125,373	..	..	*a*	..	1,735,219
TOBACCO LEAF USED (,000 OMITTED).								
Australian leaf ..	..lbs.	742	406	*a*	*a*	..	..	1,148
Imported leaf ..	..lbs.	7,089	5,096	..	*a*	18	..	12,203

(*a*) Not available for publication. (*b*) Incomplete.

PRODUCTION OF TOBACCO FACTORIES AND QUANTITY OF LEAF USED, 1919-20.

Particulars.		N.S.W. 1919-20.	Vic. 1919-20.	Q'land. 1919.	S. Aust. 1919-20.	W. Aust. 1919.	Tas. 1919.	C'wealth. *b*
QUANTITY (,000 OMITTED).								
Manufactured tobacco	..lbs.	6,836	6,164	*a*	*a*	*a*	..	13,158
Cigars	*lbs.*	*a*	*369*					552
	No.	*a*	35,232					50,777
Cigarettes ..	lbs.	4,498	338					4,837
	No.	2,112,899	143,374					2,256,273
TOBACCO LEAF USED (,000 OMITTED).								
Australian Leaf ..	..lbs.	861	574	*a*	*a*	*a*	..	1,522
Imported leaf ..	..lbs.	9,378	5,189					14,615

(*a*) Not available for publication. (*b*) Including particulars of New South Wales, Queensland, South Australia and Western Australia.

(iii) *Development of Industry.* This industry was among the first to be established in Australia. In 1861 New South Wales had eleven factories, producing 177,744 lbs. of manufactured tobacco; in the same year there was one factory in Victoria, but the quantity of tobacco manufactured is not available. The Australian market has *for many years been largely supplied with local manufactures.* The quantities imported into Australia during 1919-20 were—manufactured tobacco 682,639 lbs., *cigars 123,389 lbs., and cigarettes 133,667 lbs., while the quantities manufactured in* Australian factories were respectively 13,157,977 lbs., 552,121 lbs., and 4,836,602 lbs. The following tables shew the development of the tobacco manufacturing industry in the Commonwealth during recent years:—

DEVELOPMENT OF TOBACCO, CIGAR, AND CIGARETTE FACTORIES IN THE COMMONWEALTH, 1915 TO 1919-20.

Items.		1915.*a*	1916.*a*	1917.*b*	1918.	1918-19.	1919-20.
Number of factories		34	35	38	37	37	37
Number of employees		3,547	3,739	3,814	3,920	3,908	4,489
Actual horse-power of engines used ..		826	914	934	934	948	1,144
Approx. value of land and buildings	£	404,593	412,068	424,252	413,167	420,124	432,247
Approx. value of plant and machinery	£	241,591	253,953	260,372	265,150	270,953	313,619
Total amount of wages paid ..	£	*c*370,227	*c*394,435	438,142	466,520	490,172	633,694
Value of fuel used	£	*c*7,607	*c*9,720	13,523	12,347	13,147	16,200
Value of raw material worked up	£	*c*1,959,525	*c*2,124,204	2,344,063	2,578,758	3,110,373	4,559,110
Value of final output ..	£	*c*3,041,050	*c*3,223,433	3,543,704	3,694,246	4,306,140	6,466,649
Value added in process of manufacture	£	*c*1,081,525	*c*1,099,229	1,199,641	1,115,488	1,195,767	1,907,539
PRODUCTION.							
Tobacco made	1,000 lbs.	9,776	10,306	*d*11,107	*d*11,011	*d*10,991	13,158
Cigars	"	*c*365	*d*362	*d*398	*d*427	*d*441	552
Cigarettes	"	3,175	*d*3,351	*d*3,075	*d*3,301	*d*3,728	4,837
Leaf used	"	*c*11,858	12,541	*d*13,166	*d*12,957	*d*13,351	16,137

(*a*) Including four condiment establishments in Western Australia. (*b*) Including one condiment and two malting establishments in Queensland, and excluding two cigar factories in South Australia. (*c*) *Exclusive of two factories in South Australia.* (*d*) *Incomplete.*

22. Woollen, Cotton, and Tweed Mills.—(i) *Details for each State.* The manufacture of woollens and tweeds was established in Australia at an early period in its history, and was under Government control, the first record in New South Wales dating back to

1801, when a few blankets were made by the convicts; the first record in Victoria was in 1867. The following tables, which give particulars of the mills in each State, shew that the industry is now well established :—

WOOLLEN, COTTON, AND TWEED MILLS, 1918-19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W.A. 1918.	Tas. 1918.	C'wealth.
Number of factories	6	11	2	2	..	4	25
Number of employees	1,253	2,179	225	164	..	266	4,067
Actual horse-power of engines employed	2,590	3,647	552	278	..	245	7,212
Approx. value of land and buildings £	158,950	212,545	a	a	..	24,700	b434,735
Approx. value of plant and machinery .. .. £	242,403	368,690	a	a	..	40,281	b721,418
Total amount of wages paid during year .. .. .. £	136,931	209,674	a	a	..	20,402	b398,641
Value of fuel used .. £	16,419	29,048	a	a	..	1,949	b50,818
Value of raw material worked up £	538,498	585,320	a	a	..	48,036	b1,249,094
Total value of output .. £	945,624	1,126,119	a	a	..	113,806	b2,330,258
Value added in process of manufacture .. .. £	407,126	540,799	a	a	..	65,770	b1,081,159

(a) Information not available for publication.
(b) Including Queensland and South Australia.

WOOLLEN, COTTON, AND TWEED MILLS, 1919-20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W.A. 1919.	Tas. 1919.	C'wealth.
Number of factories	7	14	2	2	..	4	29
Number of employees	*1,461*	*2,864*	*259*	*178*	..	*287*	*5,029*
Actual horse-power of engines employed	2,900	4,674	562	285	..	284	8,705
Approx. value of land and buildings £	190,113	376,765	a	a	..	25,800	b626,822
Approx. value of plant and machinery .. .. £	338,098	742,900	a	a	..	44,700	b1,192,913
Total amount of wages paid during year .. .. .. £	176,204	324,690	a	a	..	21,300	b560,149
Value of fuel used .. £	16,965	52,429	a	a	..	2,119	b75,722
Value of raw material worked up £	580,694	1,131,765	a	a	..	56,271	b1,865,477
Total value of output .. £	*1,003,850*	*1,976,428*	*a*	*a*	..	*124,209*	*b3,290,511*
Value added in process of manufacture .. .. .. £	423,156	844,663	a	a	..	67,938	b1,425,034

(a) Information not available for publication.
(b) Including Queensland and South Australia.

(ii) *Progress of Industry, 1915 to 1919–20.* The progress of woollen and tweed manufactories in the Commonwealth during the last five years is shewn in the following table :—

DEVELOPMENT OF WOOLLEN, COTTON, AND TWEED MILLS IN THE COMMONWEALTH FROM 1915 TO 1919-20.

Items.	1915.	1916.	1917.	1918.	1918–19.	1919–20.
Number of factories	22	23	24	25	25	29
Number of employees	3,620	3,927	3,746	3,617	4,067	5,029
Actual horse-power of engines used ..	5,364	5,538	6,840	7,114	7,212	8,705
Approx. value of land and buildings £	310,114	319,275	330,511	355,981	434,735	a626,822
Approx. value of plant and machinery £	537,849	558,671	570,871	573,902	721,418	1,192,913
Total amount of wages paid £	313,826	357,137	351,043	360,466	398,641	560,149
Value of fuel used .. .. £	36,275	40,283	43,732	49,339	50,818	75,722
Value of raw material worked up £	836,298	971,144	1,073,314	1,141,962	1,249,094	1,865,477
Value of final output .. £	1,615,223	1,888,115	1,940,304	2,024,343	2,330,258	3,290,511
Value added in process of manufacture £	778,925	916,971	866,990	882,381	1,081,159	1,425,034

(iii) *Quantity and Value of Production.* The production of the woollen mills of Australia consists chiefly of tweed cloths, flannels, and blankets, all of which have acquired a reputation for purity and durability. Detailed particulars for the several States are not available for publication. The total length of tweed and cloth manufactured in the Commonwealth during 1919–20 was 5,388,177 yards. In New South Wales 2,208,846 yards of tweed and cloth, and in Victoria 2,212,202 yards were manufactured. The production of flannel in the Commonwealth amounted to 4,741,621 yards, while blankets, shawls, and rugs to the number of 632,942 were manufactured.

No cotton spinning or weaving, or linen weaving is carried on in Australia. Cotton ginning has been carried on intermittently in the northern States, and a mill was lately reopened at Ipswich in Queensland.

23. **Boots and Shoes.**—(i) *Details for each State.* Among the manufactories of Australia the boot and shoe industry holds an important place both in respect to the employment afforded and the extent of its output. The following tables shew the particulars of this industry for each State during 1918–19 and 1919–20 :—

BOOT AND SHOE FACTORIES, 1918-19.

Items.	N.S.W. 1918–19.	Vic. 1918–19.	Q'land. 1918.	S.A. 1918–19	W.A. 1918.	Tas. 1918.	C'wealth.
Number of factories	111	238	30	32	17	10	438
Number of employees	4,622	8,961	1,130	746	265	236	15,960
Actual horse-power of engines employed	1,357	1,986	315	218	67	55	3,998
Approx. value of land and buildings £	326,029	390,710	37,531	55,157	24,938	15,394	849,759
Approx. value of plant and machinery £	168,514	237,060	25,267	27,693	10,469	6,980	475,983
Total amount of wages paid during year £	553,234	987,203	122,241	79,659	27,362	22,302	1,792,001
Value of fuel used .. .. £	9 599	18,881	1,178	1,845	698	151	31,852
Value of raw material worked up £	1,333,919	2,563,423	258,106	164,596	79,017	52,397	4,451,458
Total value of output .. £	2,132,285	4,040,550	469,436	267,366	119,088	91,439	7,120,164
Value added in process of manufacture £	798,366	1,477,127	211,330	102,770	40,071	39,042	2,668,706

BOOT AND SHOE FACTORIES, 1919-20.

Items.	N.S.W. 1919–20.	Vic. 1919–20.	Q'land. 1919.	S.A. 1919–20	W.A. 1919.	Tas. 1919.	C'wealth.
Number of factories	175	264	28	33	19	13	532
Number of employees	5,157	10,357	1,088	782	315	288	17,987
Actual horse-power of engines employed	1,530	2,258	292	230	101	61	4,462
Approx. value of land and buildings £	433,269	441,095	36,724	56,355	32,199	17,804	1,017,437
Approx. value of plant and machinery £	185,313	275,210	26,304	28,363	10,165	4,972	530,327
Total amount of wages paid during year £	706,267	1,252,004	124,465	91,360	32,186	26,464	2,232,746
Value of fuel used .. .. £	12,045	24,880	1,384	1,997	676	224	41,206
Value of raw material worked up £	2,047,904	3,909,570	292,351	254,241	93,901	63,516	6,661,483
Total value of output .. £	3,101,212	5,996,639	471,593	374,535	146,303	116,683	10,206,965
Value added in process of manufacture £	1,053,308	2,087,069	179,242	120,294	52,402	53,167	3,545,482

(ii) *Progress of Industry, 1915 to 1919–20.* The progress of the industry in the last five years is shewn in the following table :—

DEVELOPMENT OF BOOT AND SHOE FACTORIES IN THE COMMONWEALTH, 1915 TO 1919-20.

Items.	1915.	1916.	1917.	1918.	1918–19.	1919–20.
Number of factories	358	352	399	432	438	532
Number of employees	13,175	13,322	15,286	15,499	15,960	17,987
Actual horse-power of engines used ..	3,029	3,249	3,590	3,742	3,998	4,462
Approx. value of land and buildings £	677,307	[illegible]	780,551	790,573	849,759	1,017,437
Approx. value of plant and machinery £	418,529	428,837	447,399	465,020	475,983	530,327
Total amount of wages paid .. £	1,229,987	1,244,700	1,574,023	1,613,728	1,792,001	2,232,746
Value of fuel used .. £	20,713	22,248	31,131	29,055	31,852	41,206
Value of raw material worked up £	2,673,016	2,793,391	3,784,338	3,912,893	4,451,458	6,661,483
Value of final output .. £	[illegible]	4,617,322	6,143,048	6,410,464	7 120,164	10,206,965
Value added in process of manufacture £	[illegible]	1,822,931	2,358,710	2,496,571	2,668,706	3,545,482

The above table furnishes evidence of substantial and consistent development in the manufacture of boots and shoes in the Commonwealth during the period under review. Since 1915, the amount of wages paid increased from £1,220,987 to £2,232,746; the value of materials used from £2,673,016 to £6,661,483; and the final output from £4,486,885 to £10,206,965. During the same period the production of boots and shoes increased by 1,771,273 pairs, and slippers by 597,182 pairs.

(iii) *Quantity and Value of Production.* The numbers and values of boots, shoes, and slippers made at factories in each State are shewn in the following tables:—

PRODUCTION OF BOOT AND SHOE FACTORIES, 1918–19.

Particulars.		N.S.W. 1918–19.	Vic. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
QUANTITY (,000 OMITTED).								
Boots and shoes ..	.. pairs	3,605	6,073	743	541	207	164	11,333
Slippers ..	.. pairs	453	244	34	40	2	..	773
Uppers *a* ..	.. pairs	115	11	59	12	*b*	6	203
VALUE.								
Boots and shoes ..	.. £	1,976,872	3,330,763	412,707	237,370	102,849	86,577	6,147,138
Slippers ..	.. £	77,259	41,491	6,973	6,607	890	105	133,325
Uppers *a* ..	.. £	39,069	3,849	23,919	5,305	*b*	2,587	72,787

(*a*) Made for other than factory use. (*b*) Included with slippers.

PRODUCTION OF BOOT AND SHOE FACTORIES, 1919–20.

Particulars.		N.S.W. 1919–20.	Vic. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
QUANTITY (,000 OMITTED).								
Boots and shoes ..	.. pairs	3,872	6,774	681	548	224	155	12,254
Slippers ..	.. pairs	509	553	39	26	2	..	1,129
Uppers *a* ..	.. pairs	41	14	4	9	*b*	6	74
VALUE.								
Boots and shoes ..	.. £	2,831,070	5,613,769	436,058	337,688	123,489	110,568	9,452,642
Slippers ..	.. £	98,397	106,042	8,556	5,727	910	..	220,532
Uppers *a* ..	.. £	17,968	6,372	2,054	5,349	*b*	1,644	33,387

(*a*) Made for other than factory use. (*b*) Included with slippers.

24. Clothing (Tailoring and Slop) Factories.—The importance of this industry in the several States and in the Commonwealth as a whole is shewn in the following table :—

CLOTHING (TAILORING AND SLOP) FACTORIES, 1918–19.

Items.	N.S.W. 1918–19.	Vic. 1918–19.	Q'land. 1918.	S.A. 1918–19.	W.A. 1918.	Tas. 1918.	C'wealth.
Number of factories	421	438	129	132	53	33	1,206
Number of employees	9,453	8,995	3,080	2,199	829	457	25,013
Actual horse-power of engines employed	444	438	251	105	63	12	1,313
Approx. value of land and buildings £	1,054,416	582,720	249,008	174,462	102,995	61,045	2,224,646
Approx. value of plant and machinery £	65,171	80,560	31,443	14,200	8,263	3,231	202,868
Total amount of wages paid during year £	812,401	682,095	236,615	165,386	75,703	35,626	2,007,826
Value of fuel used .. .. £	11,832	15,108	4,261	4,258	1,722	..	37,181
Value of raw material worked up £	1,710,597	1,781,890	461,805	314,409	125,474	47,991	4,451,166
Total value of output .. £	3,015,717	2,980,583	867,986	590,275	235,587	116,982	7,807,130
Value added in process of manufacture £	1,296,120	1,198,693	406,181	275,866	110,113	68,991	3,355,964

CLOTHING (TAILORING AND SLOP) FACTORIES, 1919–20.

Items.	N.S.W. 1919–20.	Vic. 1919–20.	Q'land. 1919.	S.A. 1919-20.	W.A. 1919.	Tas. 1919.	C'wealth.
Number of factories	414	453	131	135	53	33	1,219
Number of employees	9,997	9,322	3,086	2,318	926	541	26,190
Actual horse-power of engines employed	479	415	200	113	58	22	1,287
Approx. value of land and buildings £	1,165,926	589,460	283,861	189,065	106,380	67,879	2,402,571
Approx. value of plant and machinery £	81,721	77,205	33,501	15,438	8,800	4,238	220,903
Total amount of wages paid during year £	1,051,805	896,906	261,250	209,111	87,980	49,060	2,556,112
Value of fuel used .. .. £	12,429	16,945	4,428	4,371	1,953	815	40,941
Value of raw material worked up £	2,199,578	2,072,694	585,389	408,572	230,481	69,458	5,566,172
Total value of output .. £	3,933,063	3,662,152	1,073,449	748,255	383,235	157,518	9,957,672
Value added in process of manufacture £	1,733,485	1,589,458	488,060	339,683	152,754	88,060	4,391,500

The considerable increases which have taken place in the prices of raw materials were mainly responsible for the decline of the tailoring and slop branch of the clothing industry during the past five years.

As will be seen from the following table, the number of factories decreased by 78, and the number of employees by 2,426 since 1915. The total output shews an increase of £3,832,400, but this increase merely indicates the advance which has taken place in the price of clothing during recent years :—

DEVELOPMENT OF CLOTHING (TAILORING AND SLOP) FACTORIES IN THE COMMONWEALTH FROM 1915 TO 1919–20.

Items.	1915.	1916.	1917.(a)	1918.	1918–19.	1919–20.
Number of factories	1,297	1,274	1,248	1,205	1,206	1,219
Number of employees	28,616	28,232	26,799	25,188	25,013	26,190
Actual horse-power of engines used ..	1,323	1,647	1,426	1,379	1,313	1,287
Approx. value of land and buildings £	2,195,419	2,058,674	2,224,022	2,182,328	2,224,646	2,402,571
Approx. value of plant and machinery £	214,967	221,940	216,718	206,954	202,868	220,903
Total amount of wages paid £	1,895,146	1,889,195	1,941,667	1,954,356	2,007,826	2,556,112
Value of fuel used .. .. £	33,312	34,767	36,052	34,869	37,181	40,941
Value of raw material worked up £	3,096,134	3,403,019	3,356,572	3,759,152	4,451,166	5,566,172
Value of final output .. £	6,125,272	6,447,853	6,461,405	6,924,820	7,807,130	9,957,672
Value added in process of manufacture £	3,029,138	3,044,834	3,104,833	3,165,668	3,355,964	4,391,500

(a) Including two dyeworks and cleaning establishments in Western Australia.

25. Dressmaking and Millinery.—Particulars of dressmaking and millinery establishments are given in the following tables :—

DRESSMAKING AND MILLINERY ESTABLISHMENTS, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	264	452	52	44	49	15	876
Number of employees	5,515	6,642	1,621	914	684	307	17,683
Actual horse-power of engines employed	227	346	10	9	21	10	623
Approximate value of land and buildings .. .. £	524,769	507,275	43,582	31,084	45,305	7,535	1,159,550
Approximate value of plant and machinery .. .. £	35,063	65,875	7,117	2,898	4,425	715	116,093
Total amount of wages paid during year .. .. £	356,592	514,182	71,957	45,315	41,438	14,770	1,044,263
Value of fuel used .. £	3,187	9,354	540	471	573	..	14,125
Value of raw material worked up £	654,827	1,119,428	111,103	75,147	66,983	23,689	2,051,177
Total value of output .. £	1,223,398	1,891,802	216,053	146,371	114,363	42,708	3,634,695
Value added by process of manufacture .. .. £	568,571	772,374	104,950	71,224	47,380	19,019	1,583,518

DRESSMAKING AND MILLINERY ESTABLISHMENTS, 1919–20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
Number of factories	243	459	44	46	46	16	854
Number of employees	5,554	9,117	1,243	1,052	690	298	17,954
Actual horse-power of engines employed	206	354	29	18	23	6	636
Approximate value of land and buildings .. .. £	487,834	545,055	43,744	35,267	46,603	9,065	1,167,568
Approximate value of plant and machinery .. .. £	46,115	66,570	7,275	3,243	4,691	752	128,646
Total amount of wages paid during year .. .. £	391,856	657,004	72,371	56,580	44,487	15,518	1,237,811
Value of fuel used .. £	3,445	9,679	691	657	528	70	15,070
Value of raw material worked up £	805,181	1,579,464	108,130	85,928	82,686	23,993	2,685,382
Total value of output .. £	1,457,205	2,863,889	208,909	174,180	132,712	46,093	4,882,988
Value added by process of manufacture .. .. £	652,024	1,284,425	100,779	88,252	50,026	22,100	2,197,606

The development of dressmaking and millinery establishments in the Commonwealth during the past five years is shewn in the following table :—

DEVELOPMENT OF DRESSMAKING AND MILLINERY ESTABLISHMENTS IN THE COMMONWEALTH FROM 1915 TO 1919–20.

Items.	1915.	1916.	1917.	1918.	1918–19.	1919–20.
Number of factories	892	890	932	920	876	854
Number of employees	15,616	16,383	18,211	18,575	17,683	17,954
Actual horse-power of engines used ..	423	509	602	648	623	636
Approx. value of land and buildings £	917,895	974,766	1,036,251	1,087,567	1,159,550	1,167,568
Approx. value of plant and machinery £	79,357	82,057	99,552	111,622	116,093	128,646
Total amount of wages paid £	714,131	749,377	873,269	986,440	1,044,263	1,237,811
Value of fuel used .. .. £	9,440	10,746	13,341	14,227	14,125	15,070
Value of raw material worked up £	1,224,687	1,266,755	1,595,495	1,884,886	2,051,177	2,685,382
Value of final output .. £	2,364,862	2,481,266	2,976,725	3,405,574	3,634,695	4,882,988
Value added in process of manufacture £	1,140,175	1,214,511	1,381,230	1,520,688	1,583,518	2,197,606

Despite the high prices, the dressmaking and millinery establishments in the Commonwealth continued to progress during the past five years.

The number of employees, the actual horse-power of engines used, and the capital invested have all shewn increases since 1915, while the amount of salaries and wages paid advanced from £714,131 to £1,237,811, and the value of the final output from £2,364,862 to £4,882,988.

20. Electrotyping, Stereotyping, Printing, and Binding.—The printing industry ranks high in importance among the manufactories of the Commonwealth. It affords employment for some 20,000 employees, and pays £3,000,000 in salaries and wages. During 1919–20 the total value of the output amounted to £10,906,244.

The following table gives particulars of these industries in each State for the years *1918–19* and *1919–20*:—

ELECTROTYPING, STEREOTYPING, PRINTING, AND BINDING ESTABLISHMENTS, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	413	386	138	74	64	26	1,101
Number of employees ..	7,821	7,370	2,711	1,259	1,000	691	20,852
Actual horse-power of engines employed	4,340	3,918	1,220	1,031	699	236	11,444
Approximate value of land and buildings .. £	1,560,195	871,585	471,073	290,514	222,543	58,435	3,474,345
Approximate value of plant and machinery .. £	1,126,037	897,450	317,149	164,659	153,817	63,617	2,722,729
Total amount of wages paid during year .. £	1,076,712	983,838	380,578	169,701	154,229	94,354	2,861,412
Value of fuel used .. £	33,204	29,986	15,679	7,560	5,625	2,203	94,257
Value of raw materials worked up .. .. £	1,713,334	1,715,416	399,256	270,622	190,348	97,653	4,386,629
Total value of output £	3,491,369	3,513,702	1,120,380	559,588	460,853	235,907	9,381,799
Value added in process of manufacture .. £	1,778,035	1,798,286	721,124	288,966	270,505	138,254	4,995,170

ELECTROTYPING, STEREOTYPING, PRINTING, AND BINDING ESTABLISHMENTS, 1919–20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
Number of factories	422	396	136	77	66	28	1,125
Number of employees ..	8,363	7,646	2,868	1,434	1,050	768	22,149
Actual horse-power of engines employed	4,546	4,129	1,335	1,051	710	251	12,022
Approximate value of land and buildings .. £	1,659,911	932,800	501,191	298,967	211,149	57,036	3,661,054
Approximate value of plant and machinery .. £	1,363,178	979,145	346,629	188,532	157,419	52,240	3,087,143
Total amount of wages paid during year .. £	1,329,164	1,099,361	422,200	204,301	169,950	102,523	3,327,499
Value of fuel used .. £	37,184	34,176	17,299	7,819	5,855	2,760	105,093
Value of raw materials worked up .. .. £	1,947,789	1,901,138	452,590	371,109	233,963	97,092	5,003,681
Total value of output £	4,207,191	3,971,340	1,204,312	747,587	526,879	248,935	10,906,244
Value added in process of manufacture .. £	2,259,402	2,070,202	751,722	376,478	292,916	151,843	5,902,563

The development of electrotyping, stereotyping, printing, and binding in the Commonwealth since 1915 is shewn in the following table:—

DEVELOPMENT OF ELECTROTYPING, STEREOTYPING, PRINTING, AND BINDING ESTABLISHMENTS IN THE COMMONWEALTH FROM 1915 TO 1919–20.

Items.	1915.	1916.	1917.	1918.	1918–19.	1919–20.
Number of establishments	1,093	1,094	1,093	1,106	1,101	1,125
Number of employees	21,302	21,247	21,080	20,714	20,852	22,149
Actual horse-power of engines used ..	10,519	10,959	11,169	11,086	11,444	12,022
Approx. value of land and buildings £	3,081,872	3,346,965	3,387,006	3,440,394	3,474,345	3,661,054
Approx. value of plant and machinery £	2,607,317	2,666,977	2,664,687	2,683,781	2,722,729	3,087,143
Total amount of wages paid £	2,563,609	2,582,539	2,676,230	2,712,472	2,861,412	3,327,499
Value of fuel used .. £	79,443	84,637	87,301	89,663	94,257	105,093
Value of raw materials worked up £	2,162,896	2,394,703	3,112,140	3,690,419	4,386,629	5,003,681
Value of final output .. £	6,404,426	6,849,373	7,775,300	8,537,815	9,381,799	10,906,244
Value added in process of manufacture £	4,252,330	4,454,670	4,663,160	4,847,396	4,995,170	5,902,563

The latter table furnishes evidence of the activities of the printing establishments during the last five years. Since 1915 considerable increases have taken place in practically all of the items enumerated above, the value of the final output advancing from £6,404,426 to £10,906,244, or more than 70 per cent., and the added value from £4,252,330 to £5,902,563 or more than 38 per cent.

27. **Coach and Wagon Building Works.**—This industry forms the principal branch of manufacture in Class XI. (see § 1, 3 above). The subjoined tables give particulars of factories in this branch of industry in each State. The returns include establishments for the manufacture of wheels, spokes, etc.

COACH AND WAGON BUILDING WORKS, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	210	300	71	86	34	22	723
Number of employees	2,206	2,479	620	620	209	169	6,303
Actual horse-power of engines employed	1,209	747	224	462	149	69	2,860
Approximate value of land and buildings £	337,066	258,655	69,294	88,684	50,600	25,217	830,476
Approximate value of plant and machinery £	100,160	66,355	20,583	27,162	9,524	4,387	228,171
Total amount of wages paid during year £	275,038	261,935	61,859	64,521	27,867	15,052	706,272
Value of fuel used £	11,314	10,018	1,202	4,284	2,066	606	29,490
Value of raw material worked up £	342,124	335,869	79,706	81,232	38,164	21,139	898,234
Total value of output £	756,723	748,466	186,736	185,831	83,226	46,570	2,007,552
Value added in process of manufacture £	414,599	412,597	107,030	104,599	45,062	25,431	1,109,318

COACH AND WAGON BUILDING WORKS, 1919–20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
Number of factories	210	298	63	84	42	19	716
Number of employees	2,449	2,599	598	694	286	189	6,815
Actual horse-power of engines employed	1,176	808	262	475	164	76	2,961
Approximate value of land and buildings £	352,655	270,565	67,452	91,469	55,320	25,045	862,506
Approximate value of plant and machinery £	96,433	68,595	22,313	28,942	12,342	3,833	232,458
Total amount of wages paid during year £	332,090	310,865	62,701	79,324	33,761	16,355	835,105
Value of fuel used £	10,499	10,997	1,470	4,817	2,329	816	30,928
Value of raw material worked up £	376,769	405,320	69,827	112,111	44,562	18,253	1,028,842
Total value of output £	867,798	902,658	184,624	242,150	103,633	54,434	2,355,297
Value added in process of manufacture £	480,029	497,338	114,797	130,039	59,071	36,181	1,326,455

28. **Furniture and Cabinet Making and Billiard Table Making.**—These industries constitute the principal manufactures in Class XIII. (see § 1, 3 above). The following tables give particulars for each State:—

FACTORIES FOR FURNITURE AND CABINET MAKING AND BILLIARD TABLE MAKING, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	182	211	68	36	31	9	537
Number of employees	2,658	2,174	1,129	789	376	248	7,374
Actual horse-power of engines employed	1,941	1,277	658	888	370	169	5,303
Approx. value of land and buildings £	353,217	254,295	99,782	72,687	66,715	19,235	865,931
Approx. value of plant and machinery £	71,619	79,655	37,742	35,995	15,869	6,549	247,429
Total amount of wages paid during year £	350,191	238,648	128,452	86,208	49,783	22,895	876,177
Value of fuel used £	9,532	7,922	2,943	2,899	1,520	531	24,447
Value of raw material used £	437,525	376,120	175,815	89,147	67,306	23,955	1,169,868
Total value of output £	922,892	759,616	378,960	218,496	134,850	62,777	2,477,591
Value added in process of manufacture £	485,367	383,496	203,145	129,349	67,544	38,822	1,307,723

FACTORIES FOR FURNITURE AND CABINETMAKING AND BILLIARD TABLE MAKING, 1919–20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1910–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
Number of factories	194	258	74	41	35	11	613
Number of employees	3,265	2,810	1.142	885	464	326	8,898
Actual horse-power of engines employed	* 2,351	1,627	762	932	504	180	6,356
Approx. value of land and buildings £	407,969	328,740	118,694	80,886	63,002	13,885	1,013,176
Approx. value of plant and machinery .. .. £	100,364	90,970	44,643	31,949	21,063	6,810	304,809
Total amount of wages paid during year .. .. £	493,731	346,117	144,180	112,057	66,088	33,364	1,195,537
Value of fuel used .. £	10,891	9,139	3,744	3,912	2,084	637	30,407
Value of raw material used £	709,004	591,939	202,576	144,271	83,774	33,460	1,765,024
Total value of output .. £	1,403,989	1,163,867	421,225	312,735	175,816	83,296	3,560,928
Value added in process of manufacture .. .. £	694,085	571,928	218,649	168,464	92,042	49,836	1,795,904

29. ***Electric Light and Power Works.***—*Particulars of the electric light and power* works of the Commonwealth are given in the subjoined tables. In 1915 there were 247 establishments employing 3,131 hands, whose salaries and wages amounted to £552,524; in 1919–20 these had increased to 264 establishments, 3,696 hands, salaries and wages £716,579, while the value of output had increased during the five years from £2,935,186 to £3,512,975.

ELECTRIC LIGHT AND POWER WORKS, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	131	77	14	8	21	15	266
Number of employees ..	1,288	1,149	359	380	229	192	3,557
Actual horse-power of engines employed	107,682	48,777	15,334	16,418	31,047	19,091	238,349
Approx. value of land and buildings .. £	1,076,601	409,040	40,365	158,101	183,210	12,834	1,880,151
Approx. value of plant and machinery .. £	2,228,624	2,135,310	232,607	466,930	523,559	817,770	6,404,800
Total amount of wages paid during year .. £	237,212	190,280	63,396	67,425	45,868	35,836	640,017
Value of fuel used .. £	455,871	204,080	41,626	69,240	83,206	13,899	867,522
Total value of output £	1,545,942	835,190	335,863	246,434	245,362	139,156	3,347,947

ELECTRIC LIGHT AND POWER WORKS, 1919–20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	*S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
Number of factories	122	78	14	11	24	15	264
Number of employees ..	1,175	1,215	418	472	228	188	3,696
Actual horse-power of engines employed	93,264	49,241	21,727	16,651	30,251	18,636	229,770
Approx. value of land and buildings .. £	1,242,406	410,605	67,705	178,719	191,062	14,584	2,105,032
Approx. value of plant and machinery .. £	2,285,830	2,632,665	317,897	517,611	520,640	810,379	7,085,022
Total amount of wages paid during year .. £	253,099	217,995	77,451	86,280	46,377	35,377	716,579
Value of fuel used .. £	390,042	286,244	52,389	78,984	75,510	15,785	898,954
Total value of output £	1,552,764	953,039	360,105	306,764	209,075	131,228	3,512,975

30. Gas and Coke Works.—There are gas works in operation in nearly all the chief towns in the Commonwealth. In New South Wales there are fourteen and in Queensland two coke factories which are worked as separate industries. The subjoined tables give particulars of gas and coke works in each State for the years 1918–19 and 1919–20 :—

GAS AND COKE WORKS, 1918–19.

Items.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
Number of factories	60	46	18	5	4	2	135
Number of employees ..	1,952	2,270	593	469	60	151	5,495
Actual horse-power of engines employed	5,859	1,808	174	607	42	23	8,513
Approx. value of land and buildings .. £	1,053,038	476,210	102,238	a	20,489	a	b1,799,180
Approx. value of plant and machinery .. £	2,349,430	1,384,750	961,986	a	67,662	a	b5,419,942
Total amount of wages paid during year .. £	358,867	420,597	104,985	a	12,030	a	b1,002,362
Value of fuel used .. £	86,103	5,676	10,900	a	4,444	a	b126,049
Value of raw material used £	1,056,727	504,146	108,304	a	28,808	a	b1,811,760
Total value of output £	2,496,643	1,873,603	367,336	a	65,943	a	b4,673,683
Value added in process of manufacture .. .. £	1,439,916	869,457	259,032	a	37,135	a	b2,861,923

(a) Information not available for publication. (b) Including South Australia and Tasmania.

GAS AND COKE WORKS, 1919–20.

Items.	N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth.
Number of factories	60	45	18	5	4	2	134
Number of employees ..	2,260	2,267	603	479	67	131	5,807
Actual horse-power of engines employed	5,859	1,865	194	618	42	24	8,602
Approx. value of land and buildings .. £	1,077,455	502,385	189,717	a	22,731	a	b1,839,493
Approx. value of plant and machinery .. £	2,477,890	1,395,320	982,594	a	63,456	a	b5,550,273
Total amount of wages paid during year .. £	496,081	472,855	120,902	a	13,071	a	b1,213,449
Value of fuel used .. £	114,522	5,369	8,981	a	4,411	a	b154,671
Value of raw material used £	1,148,217	623,232	122,155	a	20,157	a	b2,056,006
Total value of output £	2,722,834	1,447,702	361,845	a	69,685	a	b5,000,479
Value added in process of manufacture .. .. £	1,574,617	824,470	239,690	a	40,528	a	b2,943,573

(a) Information not available for publication. (b) Including South Australia and Tasmania.

The following tables give particulars regarding the quantities and values of the production of gas and coke works in each State during the years 1918–19 and 1919–20 :—

PRODUCTION OF GAS AND COKE WORKS, 1918–19.

Particulars.	N.S.W. 1918–19.	Victoria. 1918–19.	Q'land. 1918.	S. Aust. 1918–19.	W. Aust. 1918.	Tas. 1918.	C'wealth.
QUANTITY.							
Gas .. 1,000 cub. ft.	8,550,218	4,904,351	1,052,575	a	169,342	a	b15,653,815
Coke .. .. tons	832,284	220,287	c45,131	a	7,512	a	b1,152,249
VALUE.							
Gas .. .. £	1,295,367	1,100,000	291,886	a	47,798	a	b3,009,410
Coke .. .. £	813,732	220,287	c41,914	a	10,913	a	b1,143,402
COAL USED.							
Coal .. .. tons	1,365,088	353,584	c90,301	a	14,525	a	b1,896,034

(a) Not available for publication. (b) Including South Australia and Tasmania.
(c) Exclusive of particulars for coke works.

PRODUCTION OF GAS AND COKE WORKS, 1919–20.

Particulars.		N.S.W. 1919–20.	Victoria. 1919–20.	Q'land. 1919.	S. Aust. 1919–20.	W. Aust. 1919.	Tas. 1919.	C'wealth. *b*
QUANTITY.								
Gas ..	1,000 cub. ft.	9,144,861	4,592,305	1,091,704	*a*	179,729	*a*	15,978,011
Coke	tons	*c*307,680	206,245	*c*49,153	*a*	6,725	*a*	*d*1,052,022
VALUE.								
Gas	£	1,521,488	1,148,076	310,102	*a*	53,265	*a*	3,320,074
Coke	£	*c*177,458	200,000	*c*31,273	*a*	9,850	*a*	*d*1,155,724
COAL USED.								
Coal	tons	*c*527,366	331,140	*c*92,720	*a*	13,331	*a*	*d*1,700,886

(*a*) Not available for publication. (*b*) Including South Australia and Tasmania. (*c*) Exclusive of particulars for coke works. (*d*) Including particulars for coke works.

SECTION XIV.

WATER CONSERVATION AND IRRIGATION.

§ 1. Artesian Water.

1. **General.**—In every country in which droughts are recurrent, there are few problems the solution of which is of greater importance than that of an adequate system of water conservation. Much has been done in the Commonwealth so far as the supply of water to centres of population is concerned, and a description of several of the metropolitan water works will be found herein, viz., in the section dealing with *Local Government*. In May, *1912*, an Interstate Conference on artesian water was held in Sydney, at which it was agreed that combined Governmental action should be taken with reference to delimitation of the artesian basin, hydrographic survey, analyses and utilisation of artesian water, &c. (See map on page 471.)

(i) *The Great Australian Artesian Basin.* In speaking of the "Great Australian Artesian Basin," the area is understood which includes (*a*) considerably more than one-half of Queensland, taking in practically all that State lying west of the Great Dividing Range, with the exception of an area in the north-west contiguous to the Northern Territory; (*b*) a considerable strip of New South Wales along its northern boundary and west of the Great Dividing Range; and (*c*) the north-eastern part of South Australia proper, together with the extreme south-eastern corner of the Northern Territory. This basin (shewn approximately by the map on page 471) is said to be the largest yet discovered, and measures about 569,000 square miles, of which 376,000 square miles are in Queensland, 90,000 square miles in South Australia, 83,000 square miles in New South Wales, and 20,000 square miles in the Northern Territory. The area of the intake beds is estimated at 60,010 square miles, viz., 50,000 square miles in Queensland and 10,010 square miles in New South Wales. A description of the basin and its geological formation will be found in previous issues of the Year Book (see No. 6, p. 569).

(ii) *The Western Australian Basins.* The Western Australian Basins fall naturally within five distinct groups, viz., the Eucla Basin, in the extreme south-east of the State, extending well into South Australia along the shores of the Great Australian Bight; the Coastal Plain Basin, west of the Darling Range; the North-West Basin, between the Murchison and Ashburton Rivers; the Gulf Basin, between Cambridge Gulf and Queen's Channel; and the Desert Basin, between the De Grey and Fitzroy Rivers. The boring operations in these basins are referred to hereinafter (see page 468.)

The Recent and Tertiary strata which enter Western Australia at its eastern border, and which have a prevailing dip towards the Great Australian Bight, form the Eucla artesian water area. But where boring operations have been undertaken, the water has been found to be salt or brackish, and there are other conditions affecting the supply, such as local variations in the thickness of the beds, their relative porosity, and the unevenness of the floor upon which they rest, which, so far, have not been examined with sufficient thoroughness to enable many particulars to be given in regard to this basin.

In the Coastal Plain Basin to the west of the Darling Ranges artesian boring has, on the other hand, been carried on successfully for many years.

(iii) *The Murray River Basin.* The Murray River basin extends over south-western New South Wales, north-western Victoria, and south-eastern South Australia. It is bounded on the west by the azoic and palæozoic rocks of the Mount Lofty and other ranges, extending northwards from near the mouth of the Murray to the Barrier Ranges, and on the east and north-east by the ranges of Victoria and New South Wales. This tertiary water-basin is occupied by a succession of sedimentary formations, both porous and impervious. It is of interest to note that the waters of the Murray River are partly supplied by influx from the water-bearing beds of this basin; this is proved by the fact that, at low water, springs are observed at certain places flowing into it from beneath the limestone cliffs from Pyap Bend downwards. Similar springs exist along the courses of other branches of the River Murray system, where they cut through the tertiary formation. On the Victorian side several bores have been put down, and water has been struck at various levels.

(iv) *Plutonic or Meteoric Waters.* In previous Year Books will be found the theory of Professor Gregory* as to the origin of the water in the Australian artesian basin, together with the objections held thereto by a former Government Geologist of New South Wales.† (See Year Book No. 6, p. 570.)

(v) *Particulars of Artesian and Sub-artesian Bores.* The following table gives particulars of artesian and sub-artesian bores in each State and in the Northern Territory :—

COMMONWEALTH AND STATES.(*a*)—PARTICULARS OF ARTESIAN AND SUB-ARTESIAN BORES, 1919-20.

Particulars.		N.S.W.	Victoria. *c*	Q'land.	S. Aust.*d*	W. Aust.	N. Ter.	Total. *c*
Bores existing ..	No.	501	310	3,701	143	165	156	4,976
Total depth bored ..	feet	890,945	85,322	3,402,419	110,418	148,458	56,160	4,603,742
Daily flow ..	,000 gals.	*e*86,533	*b*	318,300	*e*13,159	46,564	700	*b*
Depth at which artesian water was struck—								
Maximum ..	feet	4,207	700	5,450	4,850	*d*2,275	*f*1,250	5,450
Minimum ..	feet	70	150	10	55	*d*39		10
Temperature of flow—								
Maximum ..	°Fahr.	140	*b*	210	208	*d*140	*b*	*e*210
Minimum ..	°Fahr.	73	*b*	81	82	*d*80	*b*	*e*73

(*a*) There are no artesian bores in Tasmania. (*b*) Not available. (*c*) Incomplete. (*d*) Government bores only. (*e*) Exclusive of flow from pumping bores. (*f*) There is only one artesian bore in Northern Territory ; water struck at 1,250 feet.

2. **New South Wales.**—(i) *Artesian Water Supply.* The New South Wales portion of the great Australian basin, comprising approximately 70,000 square miles, is situated in the north-western portion of the State. Artesian boring in New South Wales dates from 1879, when a private bore was put down on the Kallara pastoral holding, between Bourke and Wilcannia. The first Government bore was that at Goonery, on the Bourke-Wanaaring road, completed in 1884.

The following statement shews the extent of the work which has been successfully effected by the Government and by private owners up to 30th June, 1920 :—

NEW SOUTH WALES ARTESIAN BORES, 1920.

Bores.	Flowing.	Pumping.	Total.	Total Depth.
For Public Watering-places, Artesian Wells, etc.	121	35	156	323,044
For Country Towns Water Supply ..	2	1	3	4,354
For Improvement Leases	36	4	40	63,212
Total Government Bores ..	159	40	199	390,610
Private Bores	219	83	302	439,393

The average depth is 1,963 feet in the case of Government bores, and of private bores 1,454 feet, and it ranges from 89 to 4,338 feet. The two deepest wells in New South Wales are those at Boronga, in the County of Stapylton, with a depth of 4,338 feet and a present outflow of 924,990 gallons ; and at Dolgelly, in the Parish of Carennga, in County

* See *J. W. Gregory, F.R.S., D.Sc.* : "The Dead Heart of Australia," London, John Murray, 1906 ; "The Flowing Wells of Central Australia," Geogr. Journ., July and August, 1911.

† *E. F. Pittman, A.R.S.M., formerly Government Geologist of New South Wales* : "Problems of the Artesian Water Supply of Australia, with special reference to Professor Gregory's Theory." (Clarke Memorial Lecture, delivered before the Royal Society of New South Wales, 21st October, 1907) ; "The Great Australian Artesian Basin," Sydney, 1914 ; "The Composition and Porosity of the Intake Beds o the Great Australian Artesian Basin," Sydney, 1915.

Stapylton, with a depth of 4,086 feet, and a present discharge of 534,406 gallons per day. The largest flow at the present time is that at the Wirrah bore, in the County of Benarba, which yields 1,079,776 gallons a day, and has a depth of 3,578 feet.

Of the 549 bores which have been sunk, 378 are flowing, and give an aggregate discharge of 86,532,254 gallons per day; 123 bores give a pumping supply, the balance of 48 being failures; the total depth bored represents 890,945 feet.

The flow from 74 bores is utilised for supplying water for stock on holdings served in connexion with Bore Water Trusts or Artesian Districts under the Water Act of 1912. The total flow from these bores amounts to 34,467,209 gallons per day, watering an area of 4,498,249 acres by means of 2,671 miles of distributing channels. The average rating by the Bore Trusts to repay the capital cost with 4 per cent. interest in twenty-eight years, is 1.5d. per acre, including the cost of maintenance and administration.

In the majority of cases the remaining bores are used by pastoralists for stock watering purposes only, but in a few instances the supply is utilised in connexion with country towns.

The watering of the north-western country by means of bore water has largely increased the carrying capacity of the land; and, what is of perhaps greater importance, it has made comparatively small pastoral holdings practicable in country previously confined almost entirely to the operations of companies holding immense areas.

It having been determined that multiplicity of bores is the chief factor governing the annual decrease in bore flows, and also that limiting the discharge from a bore will prolong its flowing life, action has been taken to prevent any waste by controlling the bore flow to actual requirements. It is confidently anticipated that this action will materially reduce the rate of decrease in the future.

(ii) *Shallow Boring.* The scheme described in Official Year Book No. 9 (p. 520) for assisting settlers by sinking shallow bores has met with considerable success.

Operations commenced with one plant only, but the number has been increased gradually until 28 plants are at work.

A large number of applications from settlers wishing to take advantage of the liberal conditions offered under the regulations has been received, and further applications are coming to hand daily, consequently the plants now in use will probably be insufficient to cope with the demand. Out of 531 bores put in hand up to 30th June, 1920, 94 have proved failures.

There can be no question that the added value of the holdings represented by the bores already put down is considerably in excess of their cost, and as fairly conclusive evidence of this, it might be stated that in several instances the Government Savings Bank has, on completion of a bore, made the settler a sufficient advance to enable him to pay the total cost in cash.

In addition to the work carried out under the Shallow Boring Regulations outlined above, shallow boring plants have sunk 20 bores in the Pilliga scrub and on Crown lands for the Lands and Forestry Departments.

The fact that of the bores put down in the Pilliga scrub, 46 are giving a flowing supply, adds much to their value, and is of special interest as indicating the possibility of tapping a small and hitherto unknown artesian basin.

(iii) *Private Artesian Bores.* Much has been done in the way of artesian boring by private enterprise. As far as can be ascertained, 326 private bores have been undertaken in New South Wales, of which 24 were failures. The yield of the flowing bores is estimated at 38 million gallons per day. No data are available regarding the pumping bores.

3. Victoria.—Victoria lies altogether outside the Great Australian Artesian Basin, and as water is generally available from surface or shallow underground supplies, there has not been much occasion for artesian boring. As early as 1880, however, an artesian well was bored at Sale, which gave a large supply of water of fair quality before it failed through corrosion of the casing. In 1905 a new bore was put down, which at a depth of 277 feet yielded sufficient water to fill Lake Guthridge, a local depression. But as the water was impure, and contained an excess of sulphuretted hydrogen, boring operations

were continued to 520 feet, when the lowering of the casing shut off the supply of water. A further bore was then put down at some distance from the first, and this, at a depth of 238 feet, yielded a fresh and clear water supply of about 145,000 gallons per day. Corrosion troubles occurred here also, and at the end of 1912 another bore was put down to a depth of 235 feet, artesian flows being struck at 187 feet and 235 feet. Towards the end of 1915 a flow of 200,000 gallons per day was struck at a depth of 125 feet on the Powerscourt Estate, near Maffra. Other bores are being put down in the locality.

Largely due to the failure of surface supplies in the drought of 1878 to 1886, no less than 499 bores were, before the end of 1888, put down by shire councils aided by the Government. The total depth bored was 40,000 feet; fresh water was struck in 78 instances; 47 yielded brackish but usable water; 229 were salt, while the balance were dry. The bores covered practically the whole of the settled portions of Northern and North-western Victoria and parts of Gippsland.

In the late eighties a number of bores were put down in the north-western part of the State, varying from 200 to over 2,000 feet in depth, but without any notable success. In 1897 a Board reported on boring for artesian water supply in the Mallee country, but this report was adverse, except as regards the extreme northern portion thereof. In 1906 eight bores were put down on the Overnewton Estate, Maribyrnong, to depths varying from 147 to 272 feet; small supplies of good and medium water for stock purposes were obtained, but only one of the wells yielded water fit for domestic purposes. In 1908 boring was commenced in the Mallee country near the border east of Pinnaroo in South Australia, and a line of bores from the Border to Kow Plains has proved the existence of a large sheet of underground water. Altogether, 89 bores have been successful in striking fresh water, and their depths vary from 155 to 752 feet, the water rising to within from 207 to 6 feet of the surface. In three instances the bores flow, the water rising from 4 to 17 feet above the surface. The fresh water extends nearly as far east as the 142nd meridian, and its northern limit is approximately the 35th parallel.

At 30th June, 1920, the number of existing bores in use in the north-western portion of Victoria was 310, from which supplies are obtained by pumping. The total depth bored amounted to 85,322 feet, while the maximum and minimum depths at which water was struck were 700 and 150 feet respectively. The figures include also about 206 existing private bores, with a total depth of about 41,800 feet.

4. **Queensland.**—A return relating to the 30th June, 1920, classifies the Queensland artesian bores under the following headings:—

QUEENSLAND ARTESIAN BORES, 30th JUNE, 1920.

Sunk by—	Artesian Flows.	Sub-Artesian or Pumped Supplies.	In Progress, Abandoned, or Uncertain.	Total.
Government	67	79	121	267
Local governing authorities	16	21	17	54
Private owners	1,153	1,263	964	3,380
Total	1,236	1,363	1,102	3,701

The estimated yield of water from 1,236 flowing bores on 30th June, 1920, was 318,300,000 gallons per diem. The deepest well was about 40 miles west of Blackall, lying east of the Barcoo River; this had a depth of 6,938 feet, and was stated to yield 107,300 gallons daily. Further sinking is in progress. The flow is, of course, a comparatively small one, many wells yielding, when uncontrolled, from one to three million gallons a day. The waters of many of the wells have been analysed, and some found suitable for wool-scouring only, others are suitable for watering stock but not for irrigation, owing to

the presence of alkali; others again serve for both stock and irrigation, while some, such as those containing sulphuretted hydrogen, are not of any use. Water fit for stock may generally be said to be "safe" for domestic purposes in spite of its slightly mineral taste. The wells yielding the mineral waters known as "Helidon Spa," "Boonah Spa," and "Junot Spa," which are much in use in Queensland and New South Wales, are shallow wells from 60 to 200 feet in depth.

The following table shews particulars as to Queensland bores at the end of June, 1920:—

QUEENSLAND ARTESIAN AND SUB-ARTESIAN BORES, 30th JUNE, 1920.

Particulars.		State and Local Authorities.	Private.	Total.
Bores existing	No.	*321	3,380	3,701
Total depth bored	feet	276,263	3,126,156	3,402,419
Daily flow	gallons	36,500,000	281,800,000	318,300,000
Depth at which artesian water was struck—				
Maximum	feet	4,256	5,450	..
Minimum	"	354	10	..
Temperature of flow—				
Maximum	°Fahr.	108	210	..
Minimum	°Fahr.	85	81	..

5. South Australia.—There were in South Australia 143 Government bores existing at 30th June, 1920, of which 35 were artesian and 108 sub-artesian. Of these, 106 were under 1,000 feet in depth; 23 from 1,000 to 2,000 feet; 6 from 2,000 to 3,000 feet; 5 from 3,000 to 4,000 feet; and 3 over 4,000 feet. The deepest flowing bore was at Patchawarra, on the Farina to Haddon, *via* Innamincka, route, measuring 5,458 feet, but now yielding only 50 gallons per day. The maximum flow, viz., 1,250,000 gallons, is obtained at Coonie Creek, east of Lake Frome.

The following table shews particulars as to South Australian bores at 30th June, 1920:—

SOUTH AUSTRALIAN BORES, 1920.

Particulars.		Artesian and Sub-artesian.
Bores existing	..	143
Total depth bored	feet	110,418
Daily flow	gallons	(*a*)
Depth at which water was struck—		
Maximum	feet	4,850
Minimum	feet	55
Temperature of flow—		
Maximum	°Fahr.	208
Minimum	°Fahr.	82
Total cost of construction of bores up to 30th June, 1920	..	£317,527
Expenditure during year on boring operations	..	£3,363

(*a*) Not available.

(i) *Bores between the Murray and the Eastern Boundary of the State.* The sinking of bores across the Ninety-mile Desert between the Murray and the Victorian boundary was commenced in 1886 at Coonalpyn; with the exception, however, of salt water at 55 feet, no success was met with. Ki Ki bore was sunk in 1887, and at 361 feet a good supply of water fit for stock was struck. Tintinarra bore was sunk in 1887; it was artesian when first tapped. The water was found to be fit for locomotive engines and is still used for that purpose. The bore at Emu Flat was also sunk in 1887. In 1904 a

bore was sunk at Cotton, and numerous successful bores have since been put down by the Public Works Department, and subsequently by residents of the district. The water rises to a distance from the surface of from 15 to 320 feet, and the maximum quantity obtained per diem is 48,000 gallons at the Goeden bore. Several wells, ranging in depth from 55 to 221 feet, have also been sunk in this district. The latest Government bores are Kumara in the Hundred of Kingsford, and Perponda in the Hundred of Vincent. The former has a depth of 240 feet, and the water, which is in large supply, rises to within about 96 feet of the surface. The latter is 300 feet in depth, and the water rises to within 56 feet of the surface. The water is fresh, containing about ¾ oz. salts and other solid matter per gallon.

(ii) *Bores West of Oodnadatta.* A series of bores has been sunk, beginning with Breaden bore, 20 miles west of Oodnadatta, which was put down in 1911. The others since put down in this district are at Gypsum, Imbitcha, Mirackina, Raspberry Creek, Appreetinna, Wintinna, and Marla. Of these, the only artesian supply is at Raspberry Creek, where 1,000,000 gallons per day of good water are obtained. The depths of these bores range from 280 feet at Mirackina to 1,122 feet at Breaden, and the water from all of them is good.

(iii) *Other New Bores.* New bores are being sunk at Montecollina on the Innamincka track, about 6 miles north of Box Flat; Stuart's Range, about 90 miles west of William Creek; and Mount Sarah on the Marree to Charlotte Waters route.

(iv) *Eyre Peninsula.* From time to time bores have been sunk on Eyre Peninsula, but with little success. In some instances, stock water (1½ ozs. salts to the gallon) was obtained, but this only occurred on the Nullarbor plains. In all other cases the water struck was far too salt to be used. Consequently the supply of water is now principally from catchments. A number of reservoirs have been constructed to hold from 1,000,000 to 9,000,000 gallons each. Many underground tanks have been built to contain from 40,000 up to 500,000 gallons each.

6. **Western Australia.**—The work by which the Government of Western Australia provides a permanent supply of water to Kalgoorlie, Boulder and adjacent districts on the eastern goldfields comes properly under the heading of "Water Supply Works." A description of this undertaking is fully given in previous issues of the Year Book. (See No. 6, p. 576.)

The statistics in connexion with the Goldfields Water Supply undertaking and the Mines Water Supplies will be found in the section of this book dealing with *Local Government.*

The following table shews particulars as to Western Australian artesian bores at 30th June, 1920:—

WESTERN AUSTRALIAN ARTESIAN BORES, 30th JUNE, 1920.

Particulars.		State.	Private.	Total.
Bores existing	..	92	73	165
Total depth	feet	90,127	58,361	148,488
Daily flow..	gallons	20,700,300	25,863,500	46,563,800
Depth at which artesian water was struck—				
Maximum	feet	2,275	(a)	..
Minimum	feet	39	(a)	..
Temperature of flow—				
Maximum	°Fahr.	140	(a)	..
Minimum	°Fahr.	80	(a)	..

(a) Not available.

To 30th June, 1920, the total number of Government bores was 92, and there were approximately 73 private bores recorded in addition.

The boring operations which have been carried out in the artesian basins along the West Australian Coast are as follows:—

(i) *The Coastal Plain Basin or Perth Area*, which, generally speaking, extends from Cape Leeuwin to Dongarra, and from which the Metropolitan Water Supply is largely drawn, yields a supply of water mostly fresh and suitable for domestic purposes, though towards the north it becomes brackish and is only suitable for stock.

There are 38 bores in the Metropolitan area, several of which have been put down to augment the hills supply and the domestic supply of the suburbs, and Fremantle is largely dependent upon this source.

(ii) *The North-west Basin or Carnarvon Area* may be said to extend from Gantheaume Bay in the south to Onslow in the north, and embraces a very large tract of ideal sheep country.

Many private bores have been put down on sites which permit of the gravitation of the water for miles, and, by this means, a very considerable area has been put under stock. Some remarkable flows have been obtained and, in one case, at a depth of 300 feet a flow reputed to be 3,000,000 gallons per day was struck, the water being suitable for stock. In all, about 55 bores have been put down.

(iii) *The Gulf Basin or Broome Area.* So far very little development work has been done. Artesian bores have been put down in the town site, and the domestic requirements of the town are entirely supplied from this source. The area extends from Condon in the south-west to the Meda River beyond Derby in the north, and for a considerable distance inland. So far only 7 bores have been sunk, 3 being at Broome and 2 at Derby, and 2 on the telegraph line on the road between Derby and Hall's Creek, about 67 and 80 miles inland.

(iv) *Eucla Area.* This area extends from Eucla, on the South Australian border, to west of Israelite Bay. So far, beyond the bores put down on the route of the Trans-Australian Railway, very little has been done in proving the resources of this area. In 1902 the first bore was sunk, about 35 miles north of Madura, and sub-artesian water struck at 430 feet, at an elevation of 400 feet above sea level. Following upon this, a deep bore was put down at Madura, below the cliff and nearer the coast, when an artesian supply of stock water was obtained at a depth of 2,041 feet, yielding 5,700 gallons per day. This was followed later with about 20 bores along the survey line of the proposed railway, which runs east and west about 90 miles inland. These bores were put in at intervals between the 205 mile peg and the South Australian border, and ranged in depth between 323 and 1,344 feet. In most instances only stock water was struck at depths varying between 300 and 1,300 feet, and the largest estimated supply was about 10,000 gallons per day.

7. **Northern Territory.**—In the Northern Territory, bores to the number of 159 were put down up to 30th June, 1921, 51 belonging to the Commonwealth Government. This number does not include bores put down by hand-boring plants for test purposes. One bore is artesian, and 158 give a pumping supply. The cost of construction and equipment of the Government bores exceeded £20,000. The total depth bored in State and private bores was 47,158 feet. Maximum depths were 1,474 feet in State, and 1,760 feet in private bores, and minimum depths were 110 feet and 60 feet respectively.

§ 2. Irrigation Schemes.

1. **General.**—Australia's first experiments in irrigation were made with the object of bringing under cultivation areas in which an inadequate rainfall rendered agricultural and even pastoral occupations precarious and intermittent, and, although these original settlements have for the most part proved fairly successful, most of the States, instead of promoting new settlement in unoccupied regions, are adopting the policy of making existing settlement closer, by repurchasing big estates and large farms, subdividing them into holdings of suitable sizes for cultivation, and selling the land upon easy terms of payment. It is in connexion with this Closer Settlement policy that the special value of irrigation is recognised.

2. *New South Wales.*—(i) *Water Conservation and Irrigation Works.* The provision of an adequate water supply for other than domestic purposes is essential to the well-being of all primary industries, and particularly in a country liable to dry seasons which affect extensive areas. A large portion of the State receives an adequate and regular rainfall, but there is a considerable extent of country where all the factors exist which are requisite for success in agricultural pursuits excepting only a constant water supply. The recognition of the fact that the area suitable for cultivation might be extended largely by a comprehensive system of water conservation and irrigation has induced the Government to undertake various detached works and schemes, which will constitute portion of the ultimate irrigation system necessary to serve the whole State.

The system, and the works necessary to its maintenance and development, within the State of New South Wales, are under the control of the Water Conservation and Irrigation Commission, which consists of the Minister for Agriculture for the time being as Chairman, and two other Commissioners. The works controlled by the Commission include the great Murrumbidgee Irrigation Scheme, the small irrigation settlements at Hay and Wentworth, natural works of water conservation, shallow boring for settlers, and water trusts and artesian bore trusts operating under the Water Act. The Commission has control also of storages and diversions of water by private persons for purposes of conservation and irrigation.

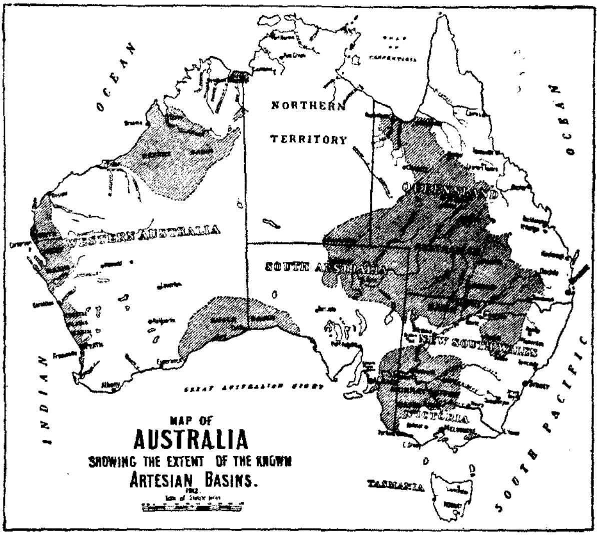
(ii) *Murrumbidgee Irrigation Scheme.* The main features of the scheme include the storage dam across the Murrumbidgee to retain the floodwaters, which will be released for use lower down the river during the dry summer months; a movable diversion weir, about 240 miles below the dam, to turn the required amount of water from the river into the main canal; a main canal, leaving the river near the weir; four main branch canals; and a series of subsidiary canals and distributing channels through the area to be irrigated; bridges, checks, regulators and other structures throughout the entire system, and meters for measuring the volume allowed to each farm. Towns and villages, also roadways to serve each farm, and a general surface drainage system, are also included in this scheme.

The site of the storage dam is at Burrinjuck, three miles below the confluence of the Murrumbidgee and Goodradigbee Rivers. The dam wall is being constructed of cyclopean masonry and concrete, and when completed will have a maximum height of 240 feet, and will impound the waters in a lake covering 12,740 acres. Ample water is being stored to meet the requirements of the farms already occupied, and to allow of water being drawn off during the summer months to augment the natural flow of the river for the benefit of riparian holders down stream. The reservoir will have a capacity of 33,612 million cubic feet, or 771,641 acre feet, the catchment area being about 5,000 square miles, drained by three principal streams—the Murrumbidgee, Goodradigbee, and Yass Rivers—up which the water will be backed, when the dam is full, to distances of 41 miles, 15 miles, and 22 miles respectively. Direct communication between Burrinjuck and the Main Southern railway has been provided by the construction of a 2-ft. gauge line from Goondah, a distance of 26 miles.

The diversion weir is situated at Berembed, about 40 miles by river and 19 miles in a direct line above the town of Narrandera. It is founded on a solid granite bar extending across the river, and has a length over all of 270 feet between abutments, divided into a sluiceway 40 feet wide in the clear; a lock chamber, 40 feet wide, capable of taking barges up to 100 feet in length; and 55 channoine wickets, manipulated from a punt moored up-stream. During the winter freshets the wickets are lowered, thus affording a clear water-way in the river channel.

The main canal branches from the river just above the weir, and, after passing through Narrandera, continues in a north-westerly direction, skirting the hills abutting on the plains. A scheme for enlarging the main canal to double its present capacity (1,000 cubic feet per second) has been approved by Parliament and the work is now in progress. The principal canals are the Gogeldrie canal, which off-takes at 47 miles from Berembed, and runs approximately parallel to the Narrandera-Hay railway through the Yanco area; the Mirrool branch canal, which off-takes at 78 miles from Berembed and supplies portion of the Mirrool area; and the Northern branch canal, which off-takes at 76 miles from Berembed.

MAP SHEWING THE POSITION AND EXTENT OF THE "AUSTRALIAN ARTESIAN BASINS."



This map was prepared by the Interstate Conference on Artesian Water, held in Sydney during May, 1912. It contains the latest facts relative to the various artesian basins of the Australian continent. Of these basins the most important is the Great Australian Basin, which is about 569,000 square miles in extent, viz.:—About 376,000 square miles in Queensland, 90,000 square miles in South Australia, 83,000 square miles in New South Wales, and 20,000 square miles in the Northern Territory. The Murray River Basin extends over South-Western New South Wales, North-Western Victoria, and South-Eastern South Australia. The Western Australian Basins fall naturally within five groups, viz.:—The Eucla Basin, the Coastal Plains Basin, the North-West Basin, the Desert Basin, and the Gulf Basin. (See also pages 463 to 469.)

The irrigation area is situated on the northern side of the Murrumbidgee River, where it is anticipated that there will ultimately be upwards of 200,000 acres under irrigation in blocks devoted to fruit and vegetable growing, dairying, stock-raising, etc. With the aid of irrigation the soil and climate of these areas are suitable for the production of apricots, peaches, nectarines, prunes, pears, plums, almonds, melons, cantaloups, and citrus fruits, also wine and table grapes, raisins, sultanas, figs, olives, and most varieties of vegetables and fodder crops. Dairying and pig-raising are already being successfully undertaken by settlers in the areas, and the canning and drying of fruit is becoming an industry of large dimensions.

The first area made available for settlement was in the vicinity of Yanco Siding on the Hay railway line. The second, which is situated on the northern side of the Mirrool Creek, is served by the branch railway from Cootamundra, which now terminates at Griffith, but which it is proposed to extend to Hillston.

Further areas are being thrown open for settlement as the construction works are completed. Farms varying in size from 2 acres to over 200 acres have been made available. The "water right" or number of "acre feet" of water allotted to each holding is specified when the holding is notified as available for application. An "acre foot" of water means such a quantity, 12 inches deep, as would cover an area of one acre. The cost of water supplied by gravitation ranges from five shillings to ten shillings per acre foot. The charge for water is reduced during the early years, and the full rate does not become payable until the fourth year. The average horticultural farm is from 15 to 25 acres, but to suit the requirements of dairymen and other stock farmers, blocks of larger areas have been made available. These comprise non-irrigable or "dry" areas, in addition to the irrigable portion. Some of these larger farms are 200 acres or upwards in extent, but the maximum water right allowed in respect of any of these larger farms is 80 acre feet. Additional water may be obtained, if available, by arrangement.

The conditions for the disposal of irrigation blocks are contained in the Crown Lands Consolidation Act of 1913, and Amending Acts. Any person of or over the age of sixteen years, if a male, or eighteen years if a female (other than a married woman not living apart from her husband under decree of judicial separation), or two or more such persons jointly, may apply for a farm or block. A married woman, not judicially separated from her husband, may, however, if she be not subject to any other statutory disqualification, (a) acquire by way of transfer, with the consent of the Minister, out of her own moneys, a lease within an irrigation area; (b) continue to hold a lease which she held before her marriage; (c) hold a lease which may devolve on her by will or intestacy of a deceased person. The tenure is perpetual leasehold.

The improvement conditions attached to the farm holdings include fencing, planting trees for windbreaks, construction of dwellings, and destruction of noxious plants.

Subject to such conditions as to security and terms of repayment as the Commission may think fit to impose, settlers may obtain an advance, or have payment of amounts owing suspended. Such advances are limited to the total amount of funds made available by Parliament for this purpose.

The Government Savings Bank Commissioners have statutory power to make loans upon mortgage of irrigation farm leases, and many settlers have already obtained help from the Bank. Concessions in railway fares and freights are made on New South Wales railways to bona fide applicants for land.

A large area of land on both the Yanco and Mirrool sections of the areas has been specially reserved for discharged soldiers. Selected applicants are required to work for a probationary period of three months, during which they are employed upon clearing and other work under supervision in connexion with the development of the soldiers' blocks, and are paid award rates while so engaged. Upon taking up residence on their farms these settlers will, subject to their intelligent and energetic use of the advances made, as well as their own labour, in the improvement of their farms,

be provided with funds up to £625 to enable them to develop their holdings, and in addition thereto such further advances may be made from time to time as found necessary to bring the farms to a proper stage of productiveness. All payments for rent, etc., and repayments of advances will be suspended in the case of fruit farms for five years and in the case of dairy farms for two years from the date of granting of the farm. The total indebtedness including interest will then become payable by instalments extending over a period of twenty years.

Towns and villages have been established at centres of the Yanco and Mirrool Irrigation Areas. The Commission is empowered to construct streets, and to provide water supply, sanitary, and other services.

An up-to-date butter factory is in operation at Leeton. The output for the year under review was approximately 156 tons, from between 130 and 140 suppliers. The factory also supplies ice to town residents and settlers. A fruit and vegetable canning factory has also been provided, which purchases vegetables and fruits grown by the settlers, and the output is rapidly increasing. A bacon factory and abattoirs have been erected at Yanco, where the settlers' pigs are treated, and where stock for butchers is slaughtered for local consumption.

One of the most important departmental undertakings on the irrigation areas is undoubtedly the State Nursery. For some years past the Leeton Nursery has been supplying trees to settlers, and in 1916 a second nursery was established at Griffith. Every effort is made to supply only the very best trees, free from disease, and to ensure this, as much use as possible is being made of budding wood from proven trees in the Leeton Nursery, and at the Yanco Experiment Farm.

The Department of Agriculture, which controls the Yanco Experiment Farm, has also established at Griffith (Mirrool irrigation area), a Viticultural Nursery for the propagation of vines on phylloxera resistant stocks. These stocks are intended not only for the supply of settlers on the areas, but for vignerons in all parts of the State.

An electric power station has been erected near Yanco Siding; electric light and power are supplied to the various factories, business people, and residents of Leeton and Yanco, and the supply is also available for settlers when the number of applicants in any centre warrants the connections being made.

On the 31st December, 1920, 1,296 farms were held, representing a total area of 71,777 acres, and the number of town blocks held was 532.

In the matter of cultivation, the following particulars indicate the extent of the work performed by the settlers :—There are approximately 4,524 acres under deciduous fruit, 2,164 under citrus fruits, 1,130 under vines. The estimated population of the areas is about 8,000.

(iii) *Other Irrigation Settlements.* Irrigation settlements have been established at Curlwaa near Wentworth, and at Hay. These were in 1913 placed under the control of the Water Conservation and Irrigation Commission.

(a) *Curlwaa Irrigation Area.* The Curlwaa Irrigation area embraces 10,600 acres, of which 1,430 acres have been subdivided into 102 irrigable blocks. On 30th June, 1920, 99 blocks, comprising 1,426 acres, had been taken up, in areas of 1½ to 40 acres. There are also 98 non-irrigable holdings of from ½ to 336 acres, comprising 7,148 acres, of which 93 blocks, representing an area of 7,028 acres, were in occupation on the above date. An area of 1,140 acres has been reserved as a common. The balance of the area is made up of road, channel and other reserves. During 1919-20 approximately 1,100 acres were under cultivation, the greater part being devoted to fruit, including oranges, peaches, apricots, nectarines, pears, grapes, sultanas, and currants. It has been proved beyond doubt that the Curlwaa soil is eminently suited to the growth of citrus and other kinds of fruit. Some of the finest oranges grown in New South Wales are produced on this area.

The estimated weight of dried fruits produced on the Curlwaa area in the year 1919-20 was 8,038 cwt., the principal yields being sultanas, 2,522 cwt.; peaches,

1,775 cwt. ; currants, 1,629 cwt. In the previous year the product was 7,992 cwt. ; in 1917–18, 6,580 cwt. ; in 1916–17, 4,865 cwt. ; in 1915–16 it was 5,955 cwt. ; in 1914–15 it was 3,178 cwt. ; in 1913–14, 5,118 cwt. ; and in 1912–13, 4,247 cwt. The heaviest crops have been sultanas and currants. The value of the dried fruit production for the twelve months ending 30th June, 1920, is estimated at £41,623 ; in addition to which the area produced fresh fruit, crops, and other produce of the value of £13,756.

The pumping machinery consists of a suction-gas plant, supplying two engines of about 55 brake horse-power each, working two centrifugal pumps, with an average combined capacity of about 4,600 gallons per minute. Additional pumping machinery with capacity of 6,000 gallons per minute is being installed. With six pumpings during the 1919–20 season, 190,105,300 cubic feet of water were supplied. The length of the main channels is about 9 miles 10 chains. The land may be leased for periods not exceeding 30 years, the annual rent at present varying from 1s. to 24s. per acre. The rate for water is fixed from time to time by the Commission, and is at present, except in a few special cases, 20s. per acre per annum. Each lessee is entitled to receive a quantity of water equivalent to a depth of 30 inches per annum, limited to 4 inches in any one month.

(*b*) *Hay Irrigation Area.* The Hay irrigation area consists of about 4,500 acres, and previous to 1913 was controlled by a Trust appointed in 1897. On 30th June, 1920, the area held and used for irrigation purposes was 1,026 acres, in 107 blocks of from 3 to 34 acres. The term of lease is generally 30 years, and the annual rental from 5s. to 12s. per acre. In addition, there was at that date an area of 2,098 acres of non-irrigated land taken up in 48 blocks. The water rate is fixed from time to time, and during 1919–20 was £1 5s. per acre per annum. The pumping machinery is of similar type to that at Curlwaa, the capacity of the pumps being 4,000 gallons per minute. During the 1919–20 season 167,445,007 cubic feet of water were pumped. Dairying is the principal industry, the cultivation of fruit being limited.

(iv) *Projected Irrigation Schemes.* The Water Conservation and Irrigation Commission are investigating schemes for storing water for the purpose of irrigation on the Darling, Lachlan, Macquarie, Hunter, Namoi, Peel and Warragamba Rivers.

(*a*) *Murray River.* The effect of constructing the Upper Murray storage will be to ensure at all times sufficient flow below Albury to permit of diversions for irrigation and stock and domestic supplies, and also to make good the losses in the river due to seepage, evaporation, and lockages. The Act provides that, subject to certain conditions, New South Wales and Victoria shall share the regulated flow of the river at Albury, and shall each have the full use of all tributaries of the River Murray within its territory below Albury, with the right to divert, store, and use the flows thereof.

It is estimated that the New South Wales regulated river flow after the construction of the Upper Murray storage will amount to at least 120,000 acre feet per month at Albury during the irrigating season, and this will permit of a considerable amount of irrigation development along the river.

An investigation is being made into the manner in which the New South Wales proportion of the Murray waters can be most profitably applied, but as yet no conclusion has been reached.

(*b*) *Darling River.* A preliminary investigation has been made of the Darling River, which shews that the most suitable site for the storage of large volumes of water when available is in the lake system to the east of the river, comprising Lakes Boolaboolka, Ratcatcher, and Victoria, and a number of other lakes (seventeen in all) fed from the river in high floods from the Talyawalka Creek, which takes off from the river about 260 miles above Menindie. Further investigation is required to determine the area which can be commanded from the storage, and the use to which the water will be put.

(*c*) *Lachlan River.* The construction of a storage reservoir at Wyangala, below the confluence of the Abercrombie River, is being investigated with the intention of affording water in the river channel for pastoral purposes and for the irrigation of limited areas along the river banks. A proposal is also being investigated for the increase of the storage in Lake Cudgellico, which is fed from the Lachlan River, and for the pumping thence of the water for the irrigation of an area of about 5,000 acres adjacent

to the lake. The possibility of regulating the amount of water diverted into numerous effluent creeks is being considered, so that the best use may be made of the Lachlan River water.

(*d*) *Macquarie River.* The construction of a storage reservoir on the river at Burrendong, below the confluence of the Cudgegong River, for the purpose of affording water by gravitation for the irrigation of certain lands to the west of Narromine is now being considered. Smaller schemes for the construction of storage dams at White Rock, and on Campbell's River, at Bathurst, have also received consideration. The run-off from this catchment is somewhat uncertain, and before giving consideration to the construction of any State irrigation scheme, further investigation is necessary.

(*e*) *Hunter, Namoi, and Peel Rivers.* Pumping by private irrigators under license under the Water Act is increasing at such a rapid rate that in the case of some of the rivers, such as the Peel and the Hunter, it will not be possible to adequately supply the pumps in dry seasons until head storage works have been constructed. Surveys have been completed for storage dams on the Hunter and Peel Rivers and for a dam on the Namoi River above Manilla.

(*f*) *Warragamba River.* The Warragamba project will serve the dual purpose of amplifying the Sydney Water Supply and irrigating the best lands in the Nepean Valley. The rate of increase in the population of the metropolitan area during recent years, if maintained, will in a short space of time cause the consumption of water to overtake the capacity of the present catchment area of the Sydney water supply, and the next available source of supply will then be the Warragamba River, where a scheme for the storage of water has been investigated. It is proposed to construct a large storage dam capable of supplying about 200,000,000 gallons daily for water supply, irrigation and trade purposes, and for compensation water. Surveys have been made and details are being prepared of this scheme.

(v) *Water Rights.* By Part II. of the Water Act 1912, the right to the use and flow and to the control of the water in all rivers and lakes which flow through, or past, or are situate within the land of two or more occupiers is vested in the Crown. Private rights are abolished, riparian law is simplified, and a system of licenses is established for the protection of private works of water conservation, irrigation, water supply, drainage, and the prevention of inundation of land. The enactment prevents litigation and determines the rights of riparian owners, and it also enables such owners to obtain licenses to supply water to other occupiers of land not adjoining a river or lake.

During the year ending 30th June, 1920, 287 applications were received for fresh licenses, comprising 227 in respect of pumps, or pumps in conjunction with dams or other works, 54 in regard to dams, and 6 respecting races. The number of applications received for the renewal of existing licenses was 158 ; 92 of the applications were in respect of pumps, in some cases used in conjunction with dams or other works, 55 respecting dams, and 11 race and other works. Approximately, 1,278 licenses were in force on the 30th June, 1919, and in the succeeding twelve months 90 new licenses were issued and 25 were allowed to lapse, so that there were about 1,343 licenses current on the 30th June, 1920.

(vi) *Water Trusts and Bore Trusts.* Part III. of the Water Act 1912 provides for the supply of water either for irrigation, stock, or domestic purposes, and for drainage, the liabilities on which are repaid to the Crown, with interest spread over a period of years, and the works are administered by trustees appointed from among the beneficiaries under the Act ; except in the case of trusts in the Western Division, where the Western Land Board is appointed as trustee. For the supply of water, trusts have been constituted in connexion with (*a*) seventy-four artesian wells ; (*b*) eight schemes for the improvement of natural off-takes of effluent channels, for the purpose of diverting supplies from the main rivers ; (*c*) in three instances for the construction of weirs across stream channels ; and (*d*) two pumping schemes, one from natural watercourses, and one from a well. The total area included within these trusts amounts to 6,627,024 acres.

3. Victoria.—(i) *Classification of Works.* The Water Conservation Works in Victoria divide themselves into irrigation works proper, and those providing mainly a domestic supply, such as the works for the supply of Melbourne, controlled by the Melbourne and Metropolitan Board of Works ; the Coliban, Wonthaggi, Broken River, Kerang Lakes, Naval Base and Mornington Peninsula, and Mallee Supply Works,

administered by the State Rivers and Water Supply Commission, and other works for domestic supply controlled by Water Works Trusts or Municipal Corporations. With the exception of the works administered by the Commission, particulars as to these works will be found in the section on *Local Government* in this volume.

(ii) *Works Controlled by the Commission.* With the exception of that of the First Mildura Irrigation and Water Supply Trust, all the irrigation schemes, and the more important domestic and stock water-supply works in rural districts, are vested in and controlled by the State Rivers and Water Supply Commission, a body composed of three members, which was created by the Water Act 1905, now incorporated in the Water Act 1915.

(A) IRRIGATION SCHEMES. This division comprises the schemes constructed and under construction for the supply of water to some twenty irrigation districts. Up to 1906 these schemes were controlled by local Trusts, which had obtained the moneys for their construction on loan from the State. By the Water Act 1905 all local control was abolished except in the case of Mildura, and the districts were transferred to the State Rivers and Water Supply Commission. Since that date the Government has adopted a vigorous irrigation policy, and the capital expenditure at 30th June, 1920, on water supply in the irrigation and water supply districts under the control of the Commission, and at Mildura, exclusive of the amount (£166,000) expended by it on River Murray Agreement Works, was £4,847,000. The irrigation works draw their supplies mainly from headworks constructed on the Murray, Goulburn, and Loddon Rivers. The cost of these headworks which now stands at £1,126,000 is not debited to any particular districts but is borne by the State. The extent of land under irrigated culture, for all kinds of crop, is 371,000 acres, being an increase of 89,000 acres over the area irrigated in the previous year and more than 120,000 acres above the average of the last four years.

The following particulars of the principal schemes will be of interest, and will convey some idea of the extent to which the one-time arid northern portion of this State is now insured against droughts like that of 1902, when the combined capacities of its storages for irrigation by gravitation were only 75,000 acre feet, and of its pumping plants, 400 acre feet per day.

(a) *Goulburn Scheme.* The Goulburn River Gravitation Scheme (see Official Year Book No. 13, map on page 561) is the largest of Victoria's irrigation enterprises. It serves, either for irrigation or domestic and stock purposes, 868,000 acres of land in the valleys of the Goulburn, Campaspe and Loddon Rivers. The present headwork of the system is a diversion weir on the Goulburn River, near Nagambie. It is constructed of concrete masonry, with 21 flood gates, which raise the up-stream water level 10 feet above the concrete crest. These gates are lowered, during high stages of river flow, to provide a clear waterway for the discharge of floods. The weir has a total length, including channel regulators, of 925 feet, and a height of 50 feet. The water is diverted by two main channels, the eastern carrying 330 cubic feet per second (660 acre feet per day) a distance of 33 miles to the country north of the Broken River, while the western, which has a capacity of 1,700 cusecs,* and a length of 23 miles, is used to feed distributaries of the Rodney District and to fill Waranga Reservoir, the present principal storage basin of the scheme. This reservoir, formed by an earthen embankment 4½ miles long across a natural depression, covers an area of 20 square miles to an average depth of 22 feet, and stores 281,000 acre feet. Works nearing completion will raise the full supply level of this reservoir by four feet, and increase the storage capacity to 330,000 acre feet. Two main channels issue from this reservoir, the Waranga-Rodney, of 250 cusecs* capacity, which feeds Rodney distributary channels, and the Waranga-Campaspe-Serpentine, which leaves the reservoir with a capacity of 1,000 cusecs, and ends at the Serpentine Creek, 92 miles westward, with a capacity of 200 cusecs. The total length of distributary channels is 1,600 miles.

With a view of meeting the increasing demand for water in dry seasons, and providing an irrigation supply for other suitable lands, the Commission is constructing a storage

* Cusecs = Cubic feet per second.

reservoir on the Upper Goulburn, just below its junction with the Delatite River, at what is known as the Sugarloaf site. The dam, which is 2,550 feet in length, consists of a diaphragm wall of reinforced concrete, built from bed rock (in some places 75 feet below natural surface) to crest level 135 feet above the river bed; a wall of clayey material on the upstream side of the diaphragm; and supporting masses of rock. This reservoir will submerge an area of 7,600 acres, and store about 300,000 acre feet of water, bringing the total capacity of the Goulburn storages to 654,000 acre feet. The foundations of the Sugarloaf structure will permit of the dam being raised, if necessary, to a height of 190 feet above the river bed. This would add 8,600 acres to the area submerged, and would increase the storage capacity from 300,000 to 900,000 acre feet.

The portion of the State served by this system comprises 19,000 acres east of the Goulburn, 565,000 acres between the Goulburn and the Campaspe, and 284,000 acres between the Campaspe and the Loddon. These areas include the irrigated Closer Settlements at Shepparton, Stanhope, Tongala, Rochester, and Dingee (see "Closer Settlement in Irrigation Districts," page 185), in which annual water rights are allotted of not less than one acre foot of water to each acre of irrigable land. They include also the districts formerly controlled by the Rodney and Tragowel Plains Irrigation Trusts, in which districts, generally, the holdings are larger than in Closer Settlement areas. The water rights in these districts are, for lands under intense culture, one acre foot of water to each irrigable acre, and for other irrigable lands, one acre foot to four irrigable acres in the former district, and one to five in the latter. The balance of the area, including Deakin district, while not subject to a compulsory irrigation charge, is provided with a domestic and stock supply, and water is sold for occasional irrigation on application. The amount of the compulsory charge for irrigation water allotted as a "right" is at present 6s. per acre foot in the two districts—Tragowel Plains and Dingee—farthest removed from the sources of supply, and 5s. per acre foot elsewhere.

(b) *Loddon River Scheme.* This also is wholly a gravitation system. The headwork is a regulating weir on the Loddon at Laanecoorie, about 22 miles westerly from Bendigo. This weir is constructed of concrete masonry with "Chaubart" automatic floodgates five feet high for a length of 320 feet, combined with an earthen embankment, the length over all being 940 feet. Its storage capacity is 14,000 acre feet. Other works of the scheme are timber diversion weirs at Serpentine and Kinypanial, 80 and 120 miles downstream respectively, also 160 miles of channels (taken over from several irrigation Trusts in the Boort district) which supply an area of 74,000 acres for domestic and stock purposes and partial irrigation.

(c) *Murray River Schemes.* These comprise both gravitation and pumping schemes. The only wholly gravitation system is that known as the Kow Swamp scheme, which supplies the Kerang irrigation district of some 85,000 acres. The off-take is at Torrumbarry headworks, from which the Gunbower channel diverts water, when the Murray River is five feet above summer level, to the Kow Swamp storage, a natural depression improved so as to hold a volume of 41,000 acre feet. From this reservoir the water is distributed by the Macorna channel (40 miles in length) and about 200 miles of distributaries.

The Cohuna, Gannawarra, Koondrook and Swan Hill Schemes are combined gravitation and pumping schemes. The Cohuna-Gannawarra plant consists of two 36 inch and four 39 inch centrifugal pumps—total capacity 280 cusecs*; those at Koondrook and Swan Hill, each of 100 cusecs capacity, consist each of two 39 inch centrifugal pumps. The pumped supplies are supplemented at varying stages of river level by the gravitation water.

The Cohuna, Koondrook and Swan Hill Districts, comprising 106,000 acres, embrace the irrigated Closer Settlements of the same names. In these districts and that of Gannawarra (comprising 44,000 acres) the quantity of water allotted as a "right" is one acre foot per irrigable acre. The compulsory charge is at present 5s. per acre foot of such water right. In Kerang district—not under a compulsory irrigation charge—water is sold to irrigators on application at a charge not exceeding 3s. per acre foot of water supplied.

The Nyah Irrigation Area was occupied in 1894 under village settlement conditions, settlers being allowed up to 50 acres each. Individual attempts at irrigation having proved unsuccessful, a Government scheme was prepared for the whole settlement. A number of settlers surrendered portions of their holdings, which were too large for effective working, and these portions, with adjacent Crown lands, were re-subdivided and made available, under the Murray Settlements Act 1907, on easy terms. Water is diverted from the Murray by a high lift pumping plant—capacity 25 cusecs*—consisting of two coupled 24 inch turbine centrifugal pumps. The settlement now contains 193 holdings, of an average area of 17 acres, of which 183 are settled. Water rights are apportioned to these holdings on the basis of 2½ acre feet of water for each irrigable acre, and the compulsory charge is at present 14s. per acre foot of such water rights. The land is devoted mainly to vineyards and orchards, and the settlers, taken as a whole, are making good progress. The value of irrigation to the district is reflected in the selling price of the land, fully planted blocks bringing remarkably high prices.

The Merbein Irrigation Area comprises 7,700 acres of what, eleven years ago, were Crown lands. This settlement now contains 354 holdings, averaging 22 acres each. These holdings also, when fully improved, sell at very high prices. The water is pumped from the Murray by a plant of four turbine centrifugal pumps—lift 96 feet, capacity 50 cusecs*—and one 36 inch high lift centrifugal pump, capacity 50 cusecs.* The land settlement conditions and water rights apportioned are the same as at Nyah, but the compulsory charge is at present 17s. per acre foot.

(*d*) *Werribee River Schemes.—Bacchus Marsh.* The headwork of this gravitation scheme is a reservoir of 15,000 acre feet capacity on Pyke's Creek, a tributary of the Werribee, the in-take from the creek catchment being supplemented by a tunnel through a dividing spur, which taps the Werribee River near Ballan. The dam, 1,000 feet in length and 100 feet in height, is built of earth, with dwarf concrete core. The area of the district is 6,600 acres—half of which is irrigable—and includes some of the richest lucerne land in the State. The annual water right is one acre foot per irrigable acre, and the present compulsory charge is £1 per acre foot of such right. The higher portion of the district receives a supply for domestic and stock purposes.

Werribee. This is another gravitation scheme on the same river. The headwork is a reservoir at Melton, immediately below the Bacchus Marsh district. The dam is of earth, with dwarf concrete core. Its length is 600 feet, height 100 feet, and the storage capacity of the reservoir 17,000 acre feet. A diversion weir at Werribee, 17 miles downstream from the reservoir, a main channel therefrom, and the usual distributaries and appurtenant works, complete the scheme. The irrigation district comprises some 8,000 acres of first-class land, being the irrigable portion of the Werribee Closer Settlement Estate, which is within 20 miles southwesterly of Melbourne. The water right allotment is one acre foot per irrigable acre, and the charge at present is 10s. per acre foot. The non-irrigable portion of the estate, containing about 13,000 acres, is supplied with water for domestic and stock purposes.

(B) DOMESTIC AND STOCK SCHEMES. (*a*) *General.* The second division takes into account the schemes constructed and under construction for the supply of water for domestic and stock purposes, the capital expenditure on which at 30th June, 1920, was £5,372,000. The area of country lands artificially supplied with water for these purposes is nearly 21,000 square miles. The number of towns supplied, exclusive of the City of Melbourne and its suburbs, is 160, serving an estimated population of 297,000. In addition to the Commission's districts, some large areas are still administered by local authorities.

(*b*) *Wimmera-Mallee System.* The principal scheme in this division is that known as the *Wimmera-Mallee Gravitation Channel System.* This comprehensive scheme of works will compare favourably, it is believed, with any similar individual scheme, for domestic and stock service, in any part of the world. The main supply is drawn from three reservoirs in the catchment area of the Wimmera River, at the foot of the Grampians Ranges, viz.:—Lake Lonsdale, Wartook, and Fyans Lake. A fourth—Taylor's Lake—now under construction, is nearing completion. The reservoirs in use, including some minor works, have a combined storage capacity of 113,000 acre feet. The completion of the works in progress will bring this total to 200,000 acre feet. The water

*Cusecs—Cubic feet per second.

is conveyed, partly by natural water-courses, but chiefly by artificial chann aggregating over 4,000 miles in length, over farming districts comprising about 8, square miles, approximately one-tenth of the whole State (see Official Year Book No. map on page 562).

(c) *Naval Base and Mornington Peninsula Scheme.* Another scheme in this divis which calls for mention here is the *Naval Base and Mornington Peninsula Scheme.* T comprehensive scheme—prepared at the request of the Naval Authorities—is for supply of water to the Flinders Naval Base, and for the service of fifteen townships route, including Berwick, Beaconsfield, Pakenham, Aspendale, Chelsea, Carru Frankston, Mornington, and Hastings. An ample supply of water is obtainable fro the headwaters of the Bunyip River, which drains some 30 square miles of forest countr above the point of off-take. The works are so far advanced that water is already bein delivered at the Naval Base, and to the townships of Mornington, Frankston, Aspendale and the intervening bayside towns.

The scheme is being extended to supplement the supply to the township of Dandenong, hitherto controlled by a local Trust, the works of which were recently transferred to the Commission, which will administer them as part of the general scheme.

(d) *Flood Protection.* The Water Acts of Victoria provide for the constitution of Flood Protection Districts, in which the residents are rated for schemes carried out for their benefit. The works are constructed, and Districts administered by the State Rivers and Water Supply Commission. Under these provisions the Commission is carrying out extensive schemes at Koo-wee-rup and Cardinia, in the south-eastern portion of the State, and works, on a smaller scale, at Echuca.

(iii) *Mildura.* The creation of an irrigation colony at Mildura was the outcome of a visit by Mr. Deakin to California in 1885, when Messrs. Chaffey Bros. were invited to visit Victoria, with the object of founding a similar settlement to those which they had been largely instrumental in establishing in California.

Active operations were commenced in 1887, since which date marvellous progress has been made, instanced in the fact that, originally used as a sheep run and carrying one sheep to every thirty acres, the dried fruit harvested from 13,000 acres in 1920 was valued at £1,238,373 gross.

Water is pumped and supplied under Act of Parliament by the first Mildura Irrigation Trust from the river Murray from two pumping stations:—(1) into a billabong, and thence to pumps lifting to various levels, and (2) to a comparatively small area adjacent to the town.

The length of the Trust's main and subsidiary channels is 280 miles. For the year ending 30th June, 1920, the Trust's receipts aggregated £38,707, and its expenditure £50,752. For the same period the number of water acres supplied was 41,808.

Loans (balance) advanced to the Trust by the Government for the purpose of improving the plants and channels, etc., amounted at 30th June, 1920, to £87,177, exclusive of the sum of £9,087 (balance) arrears of interest.

The area of the settlement is 45,000 acres, of which 13,000 acres are under intense culture, vines predominating.

4. Queensland.—The main irrigation works in Queensland are as follows:—(a) those at Ayr, which utilise the waters of the Burdekin River, and shallow wells on its banks; (b) those at Bingera, near Bundaberg, which utilise water pumped from the Burnett River just above the point of meeting of the salt and fresh waters, and (c) those at Fairymead, which utilise water pumped from a number of shallow spear wells sunk on the alluvial flats on the north side of the Burnett River and about six miles from Bundaberg. There were 701 irrigators in the State in 1919, chiefly farmers and graziers, and the area irrigated was 9,267 acres.

5. South Australia.—(i) *The Renmark Irrigation Trust.* The Renmark Irrigation Trust was established in 1893 on similar lines to Mildura, but on a smaller scale. The area of settlement is 21,000 acres, the area under irrigation being 5,364 acres. There are also 1,000 acres under crop for hay. The dried fruit pack for 1920 was 2,500 tons, green fruit 5,000 tons, and the gross value of the production for the year exceeded £235,000. The population of the town and settlement is 4,000. The chief products are sultanas,

currants, raisins, oranges, apricots, peaches, pears, prunes, olive oil, and grape spirit. There are two distilleries for the manufacture of grape spirit, and several packing sheds for dried fruits.

(ii) *Other Waterworks.* A number of country water works are under the control of the Public Works Department. As, however, they are not irrigation works properly so called, but are used for supplying water for domestic purposes, etc., to several towns, no further reference will be made to them in this chapter. (See Section XXVI., *Local Government.*)

(iii) *Area under Irrigation.* The Irrigation Areas on the River Murray above Morgan under Government control, up to the end of March, 1921, contained 13,535 acres of irrigable land allotted to 732 settlers, about 1,200 acres reserved by the Department for fodder cultivation, etc., 4,200 acres ready for allotment, and about 14,000 acres in course of preparation. The pumping plants at present installed on these areas aggregate 4,428 brake horse-power, with a pumping capacity of 4¼ million gallons per hour.

The *Cadell Irrigation Area* is 7 miles by river above Morgan. Total area of settlement, 2,726 acres, of which 1,184 are irrigable. Blocks have been allotted to 71 soldier settlers and the balance is ready for allotment in 14 blocks. This area is suitable for fruit-growing. The first allotment was on 30th September, 1919, The pumping plant is a 190 b.h.p. steam plant with centrifugal pump; capacity, 4,200 gallons per minute against a head of 90 feet.

The *Waikerie Irrigation Area* is 39 miles above Morgan by river. This area includes the old Waikerie and Ramco Settlements. The total area of settlement is 9,276 acres, of which 2,759 acres is first class irrigable land growing fruit trees and vines. This area is divided between 136 settlers, and the first allotment took place on the 5th July, 1910. The pumping plant consists of four units—three suction-gas and one steam unit—with a total of 1,110 b.h.p. Capacity of plant, 13,500 gallons per minute against a total head of 150 feet. A fifth unit is being installed with a capacity of 4,200 gallons per minute.

The *Holder Irrigation Area* adjoins the *Waikerie Irrigation Area,* and has been incorporated as a portion of that area. It contains 358 acres of irrigable land and 2,017 acres of dry land. Blocks have been allotted to 22 settlers, including eleven soldier settlers, and a further three settlers can be accommodated. The pumping plant consists of two steam units, total b.h.p., 338; capacity, 4,750 gallons per minute. One hundred and ten acres of irrigable land adjoining, held by Holder Ltd., is irrigated by this plant.

The *Kingston Irrigation Area* is situated 75 miles above Morgan by river, and comprises the old village settlement of that name. It has a total area of 3,748 acres, of which 493 acres are irrigable. This area was allotted to 30 settlers in July, 1914, and is used for fruit and vine culture. Pumping plant, 118 b.h.p. steam plant; capacity of pump, 2,000 gallons per minute; total head, 118 feet.

The *Moorook Irrigation Area,* adjoining the Kingston Area, contains 5,959 acres of land, of which 1,074 acres are good land suitable for vines and fruit trees. One thousand and twenty-eight acres of irrigable land has been allotted to 53 settlers, of whom 34 are soldier settlers. First allotment of area, March, 1916. The area is irrigated by a 250 b.h.p. steam plant, with a capacity of 4,160 gallons per minute against a total head of 142 feet. A second steam unit, with a capacity of 3,000 gallons per minute is being installed.

The *Cobdogla Irrigation Area* is on the opposite side of the river to Kingston and Moorook Areas. It was formerly a sheep station, and was resumed by the Government for irrigation purposes. The total area of the station was 160,000 acres, of which 23,100 acres has been set apart as the Berri Area, and the remainder—137,000 acres—as the Cobdogla Area. The latter area includes Lake Bonney, 4,000 acres in extent. This lake is situated 3 miles inland from the Murray, and is filled at high rivers by Chamber's Creek, a winding waterway. The water is retained in the lake by a weir, with movable shutters, erected at the junction of the lake and creek.

The Cobdogla Area contains about 30,000 acres of first class land, capable of intense culture. A portion of this area, 1,834 acres, has been developed as a low lift area, the pumping head being about 40 feet. This land is suitable for vine culture or fodder for dairy farming. Six hundred and twenty-one acres have been allotted to fifteen settlers,

and 1,210 acres are being used by the Department for nursery fodder-growing, and other purposes. The remainder of the proposed irrigable land, about 28,000 acres, will be utilized for fruit, vines, and fodders. About 3,000 acres are ready for allotment at the south end of Lake Bonney, and a further 7,000 acres are now in course of preparation. Pumping plant at present installed is a 340 b.h.p. steam plant; capacity, 16,700 gallons per minute against a total head of 40 feet. A second pumping plant has been installed at the south end of Lake Bonney. This is a 390 b.h.p. steam plant with a capacity of 9,000 gallons per minute against a head of 100 feet. A second lift plant is being installed, with a capacity of 3,300 gallons per minute. The completed area of Cobdogla will have five pumping stations, two on the lake at the north end and south end, two on the River Murray, and one intermediate from the low lift.

The *Berri Irrigation Area* is 120 miles above Morgan by river, and contains a total area of 23,100 acres, of which 8,100 acres is first class land for fruit and vine culture. Seven thousand one hundred and thirty acres of irrigable land has been allotted to 405 settlers, of whom 222 are soldier settlers, and 970 acres are ready for allotment in 76 blocks. The first allotment of the older portion of this area took place in January, 1911. The pumping plant consists of five units—three suction-gas and two steam units—with a total of 1,702 b.h.p. and a capacity of 24,700 gallons per minute against total heads varying from 50 feet to 120 feet. Another steam unit is being installed with a capacity of 9,000 gallons per minute.

The proposed *Chaffey Irrigation Area* will comprise a large area of country adjacent to Renmark, at present known as Ral Ral. Survey work is proceeding over 7,000 acres, which can be watered with a lift of approximately 45 feet, and the construction of channels, &c., will be commenced shortly. This area will be prepared for early allotment. A pumping plant will shortly be installed with a capacity of 12,500 gallons per minute. The future extension of this area may approximate 100,000 acres, with lifts not exceeding 100 feet above low river.

The *Irrigation and Reclaimed Swamp Areas* under Government control on the River Murray below Morgan contain 6,100 acres of high irrigable and reclaimed swamp land, allotted to 243 settlers. The former land is irrigable by pumping, and the latter by gravitation. There are also 2,300 acres ready for allotment to 133 settlers, and 4,800 acres under preparation, which will accommodate 274 additional soldier settlers. Pumping plants installed total 1,500 b.h.p.; capacity, 3,500,000 gallons per hour.

Mobilong and Burdett Areas adjoin Murray Bridge, and contain 575 acres of reclaimed fodder land, with 46 settlers.

Long Flat and Monteith Flat, below Murray Bridge, have between them a reclaimed area of 1,342 acres, divided between 57 settlers.

Swanport Area, below Murray Bridge, has 191 acres of fruit and fodder land, and has fourteen soldier settlers.

The *Jervois Irrigation Area* is in course of construction. It is 15 miles below Murray bridge, and includes 1,224 acres of irrigable and reclaimed land. It will accommodate 62 settlers when completed.

The *Wood's Point Area* is 12 miles below Murray Bridge, and contains in its total area of 3,170 acres about 978 acres of reclaimed land, and 250 acres of high irrigable land. The area is in course of preparation, and will accommodate 65 soldier settlers.

The *Wellington Area* is 18 miles below Murray Bridge, and has an area of over 12,000 acres. Of this area about 1,820 acres is reclaimed land. This area will provide for 121 soldier settlers, and is at present in course of preparation for settlement.

The *Mypolonga Area* is 9 miles above Murray Bridge. This area has a river frontage of 7 miles. The total area of this settlement is 5,800 acres, of which 1,074 acres are irrigable and 1,627 acres reclaimed land. The area has 84 settlers.

The *Pompoota Area*, situated 13 miles above Murray Bridge was, up till recently, used as a training farm for prospective soldier settlers, and will now be allotted amongst 38 of the trainees. The area contains 674 acres of fruit and fodder land.

The *Wall Area*, 16 miles above Murray Bridge, has 779 acres of irrigable and reclaimed land. Twenty soldier settlers are settled on the area, and blocks are available for ten more.

The *Neeta and Cowirra Irrigation Areas* are 20 miles above Murray Bridge, and include in their areas 410 acres of high irrigable land and 1,702 acres of reclaimed fodder land. These areas are in course of preparation, and at present 22 soldier settlers have been placed on blocks. A further 85 settlers can be accommodated when areas are complete.

The *Mannum Area* is about 21 miles above Murray Bridge, and has an area of 1,350 acres. Five hundred and twenty-eight acres will be reclaimed and allotted to 20 soldier settlers in the near future.

Lake Albert. There is a possibility of this lake being reclaimed in the near future, which will give an area of about 40,000 acres suitable for dairying. The total area, including afore-mentioned areas, adjacent to the River Murray, possible of reclamation, or of being brought under irrigation, including 75,000 acres of Lake Alexandrina, is 282,556 acres.

The reclaimed lands consist of peaty soils composed of rich river silt, and are eminently suited for lucerne and other fodders, and for onions, potatoes, etc. The soils of the irrigable lands have already proved their suitability for the production of peaches, apricots, nectarines, oranges, lemons, figs, and grapes.

All lands are allotted under perpetual lease, and blocks are surveyed into areas varying up to 50 acres of irrigable or reclaimed land. No lessee is permitted to hold more than 50 acres of irrigable or reclaimed land, or of both irrigable and reclaimed, except that in the case of a partnership 50 acres may be allotted for each member of the partnership up to a maximum of 150 acres.

In addition, areas of non-irrigable land are allotted to lessees of irrigation and reclaimed blocks for dry farming. The rentals of the blocks are fixed by the Land Board immediately prior to the land being offered for application. For the reclaimed land an amount is charged sufficient to cover interest on cost of land and reclamation, while for the irrigable land the rent is based on the unimproved value of Crown lands, or to cover interest on cost of repurchased lands.

On the irrigable land, the water rate has been fixed at 40s. per acre per annum for the first four years, after which an amount will be charged sufficient to cover actual cost of supplying water, and interest on pumping plant, channels, etc. On the reclaimed lands an amount is charged to meet the annual management, drainage, and maintenance expenses. A sliding scale covers the rent on all land and water rates on the irrigable land for the first four years, *i.e.*, first year, one quarter of the rent and water rates; second year, one-half; third, three-quarters; fourth and afterwards, full amount per acre. On the irrigable lands, each lessee is entitled for the water rate to 24 acre-inches per annum, supplied in four irrigations. Special irrigations and domestic supplies are supplied at times other than during the general irrigations at a nominal cost. On the reclaimed lands, water is supplied regularly by reticulation from the river.

The Department assists settlers by fencing, clearing, grading, and constructing irrigation channels and tanks. Such improvements are undertaken up to a value not exceeding £15 per acre of the irrigable area in each lessee's block, but before the work is commenced a deposit must be paid equal to 15 per cent. of the Department's estimated value of such improvements. The total cost of the work, less deposit, is treated as a loan to the lessee, and is repayable in twenty equal annual instalments after the expiration of five years, or at any shorter period if desired by the lessee, current rate of interest being charged. Any lessee is permitted to accept the contract for carrying out his own improvements according to the specifications and estimates of the Department, up to the maximum amount per acre, as mentioned above. Advances can be obtained from the Advances to Settlers Board for the purchase of stock, discharging mortgages, erecting permanent buildings and other improvements, the first £400 being advanced on the fair estimated aggregate value of the settler's lease, and any improvements already made on the holding, and those in course of being made thereon. Any loan beyond £400 would not exceed 15s. in the £1 of the fair estimated value of the improvements already made.

6. Western Australia.—An Irrigation Act has been brought into force providing for the constitution of irrigation districts. At Harvey, works for irrigating about 4,000 acres devoted to fruit growing, principally oranges, were opened on the 21st June, 1916. A scheme is now in preparation for irrigating a further area in the same district.

Numerous small private irrigation schemes are in full operation on many of the south-west rivers, in connection with fruit, fodder, and potato growing.

7. Murray Waters.—(i) *Water Rights of States.* The relative rights of the States of New South Wales, Victoria, and South Australia to the waters of the Murray River being undetermined, negotiations which had been in progress for some considerable time resulted in the passing of the River Murray Waters Act 1915. Territorially the south bank of the Murray River was the boundary between New South Wales and Victoria. The region of the river itself, up to the point of its entry into South Australia, was wholly within the former State. At the Federal conventions which preceded the establishment of the Commonwealth, the South Australian delegates expressed their fear lest too much irrigation on the Murray and its tributary, the Darling, might impair the navigability of the lower waters of the river. The result was the insertion of a provision in the Commonwealth Constitution, which reads as follows (Section 100):—

> "The Commonwealth shall not by any law or regulation of trade or commerce abridge the right of a State or of the residents therein to the reasonable use of the waters of rivers for conservation or irrigation."

(ii) *Conferences.* After considerable controversy, a conference was held in Melbourne in January, 1911, between the Premiers of New South Wales, Victoria, and South Australia, on the Murray Waters question. The main results of the conference were that Lake Victoria and certain lands adjacent thereto situated within New South Wales territory should be handed over by New South Wales to South Australia for purposes of a storage basin, and that South Australia might lock her own portion of the Murray at her own expense; no rights of navigation were conceded by New South Wales and Victoria, who would not bind themselves to deliver any quantity of water at the point of intake into South Australia; the upper portions of the river were left free for irrigation.

In 1913 the three States appointed a Board of engineers to carry out investigations, with a view to ascertain means which would lead to a settlement of the whole question of the waters of the Murray and its tributaries. The Board in its report recorded its belief that the interests of irrigation are more important than those of navigation, and that the heavy expense of maintaining the latter is not warranted; suggestions relative to the apportionment between the three States concerned of the river waters and of the works contemplated for their conservation were also made. (See Official Year Book, No. 7, page 510.)

In April, 1914, further discussion took place at the Premiers' Conference in Melbourne, certain resolutions being agreed to by the Prime Minister of the Commonwealth and the Premiers of New South Wales, Victoria, and South Australia. (See Official Year Book, No. 8, page 507.)

(iii) *Legislation.* The necessary authority having been given by the Parliaments of the three States concerned, the Commonwealth River Murray Waters Act was passed in 1915, and on 31st January, 1917, was brought into operation. The procedure to be followed in the construction of works is set out. All works under the agreement will be constructed by the Constructing Authorities of the States concerned (New South Wales, Victoria, and South Australia). Each of these bodies is to prepare and to submit to the Commission a general scheme of the works to be constructed by it, with designs and estimates. The approval of the Commission is to be given before the commencement of any work embodied in the scheme. The Constructing Authority is then authorised to proceed with the work in accordance with the approved designs and estimates.

(iv) *Constitution of the Commission and its Activities.* The Commission was constituted on 31st January, 1917, and consisted of four members, representing respectively the Governments of the Commonwealth, New South Wales, Victoria, and South Australia. Steps were immediately taken to obtain information regarding investigations, surveys, works, gaugings, diversions, etc., theretofore made. The contracting State Governments were requested to expedite the submission of their general schemes and proposals in connexion with the various works embodied therein, particularly with a view to providing employment to returned soldiers, and making available suitable areas for soldier settlements on the banks of the Murray.

The general schemes of works to be constructed by the Governments of New South Wales and Victoria above Wentworth (including the Upper Murray storage and seventeen weirs and locks), and by the Government of South Australia below Wentworth (including the Lake Victoria storage and nine weirs and locks), have been approved.

Designs and estimates for the following works have been submitted to the Commission, and with certain reservations, have been approved :—

To be constructed jointly by the Governments of New South Wales and Victoria.—Upper Murray storage (to be known as the Hume Reservoir), estimated cost £1,629,000. This reservoir, which will be created by the construction of a dam immediately below the junction of the Mitta Mitta and Murray rivers, will have a storage capacity of one million acre feet. The site for this work was decided upon only after the most exhaustive investigations, 28 possible sites on the River Murray above Albury having been thoroughly examined. The ceremony of turning the first sod in connexion with this important work was performed by His Excellency the Governor-General on the 18th November, 1919.

Weir and lock at Torrumbarry below Echuca (estimated cost £120,000).

To be constructed by the Government of South Australia.—Lake Victoria storage, providing for the storage of about 500,000 acre feet, estimated cost £320,000. Weir and lock No. 2, estimated cost £162,758 ; weir and lock No. 3, estimated cost £126,328 ; weir and lock No. 9, estimated cost £186,898.

Prior to the appointment of the River Murray Commission, the Government of South Australia had commenced the construction of lock No. 1 at Blanchetown. Despite delays due to floods and other causes, this work is proceeding steadily. Work on the lock and on the navigable pass is practically completed, and the Constructing Authority is now proceeding with the construction of the weir.

The Constructing Authorities for New South Wales and Victoria are proceeding with surveys and investigations along the river with a view to the location of the sites of further weirs and locks below Echuca, and it is anticipated that at an early date proposals regarding two of such weirs and locks, viz., those in the vicinity of Wentworth and Mildura, will be submitted to the Commission.

The River Murray Agreement also provides for the construction by the Government of New South Wales of nine weirs and locks in the Murrumbidgee River from its junction with the Murray River to Hay.

The cost of the River Murray Scheme, based on an estimate prepared prior to the signing of the Agreement, was set down at £4,663,000. Towards this sum the Commonwealth will contribute £1,000,000. Each of the three contracting State Governments will provide the sum of £1,221,000. Owing to the increased cost of labour and materials it is anticipated that this estimate will be considerably exceeded.

The effect of constructing the Upper Murray storage will be to insure at all times sufficient flow below Albury to permit of diversions for irrigation, and stock and domestic supplies, and also to make good the losses in the river due to seepage, evaporation, and lockages. The Act provides that, subject to certain conditions, New South Wales and Victoria shall share the regulated flow of the river at Albury, and shall each have the full use of all the tributaries of the River Murray within its territory below Albury, with the right to divert, store, and use the flows thereof. It is estimated that the New South Wales regulated river flow after the construction of the Upper Murray storage will amount to at least 120,000 acre feet per month at Albury during the irrigation season, except in a period of phenomenal drought, such as 1902–3 and 1914–15.

Finance. The total expenditure on works incurred by the three Constructing Authorities up to the 30th June, 1920, was—

	£	s.	d.
New South Wales	£45,555	17	1
Victoria	74,331	4	9
South Australia	271,477	0	9
Total	£391,364	2	7

The estimated expenditure during the financial year 1920–1921 is £618,000

Plant. Plant necessary for the construction of works pursuant to the River Murray Agreement will be provided by each of the contracting State Governments at its own cost. A Conference of representatives of the Commission and the Constructing Authorities is now considering the question of the charges for the use of such plant, with a view to the adoption of uniform procedure.

Gaugings. The Conference of representatives of the three contracting State Governments appointed by the Commission furnished its report on 27th October, 1919.

In connection with gauges, the Commission resolved that the zeros of all gauges required by the River Murray be placed "rather below" the cease-to-flow level of the streams; also that the suggestion that other gauges in the River Murray Basin under State control be treated in a similar manner be referred to the State Authorities for consideration.

The procedure to be adopted in connexion with estimated losses in the streams will receive further consideration when the work of construction on the River Murray is further advanced.

Regarding diversions, the Commission is to be furnished with returns in respect of—

(*a*) Irrigation of areas over 3 acres.

(*b*) Stock, domestic, and town supplies other than to occupiers of land on either bank of the stream.

Recommendations of the Conference in regard to the method of gauging locked rivers will receive consideration at a later date.

SECTION XV.

COMMERCE.

§ 1. Introductory.

NOTE.—From the 1st July, 1914, the Trade Year, which was formerly the Calendar Year, was altered to coincide with the Fiscal Year (July to June).

1. Constitutional Powers of the Commonwealth in regard to Commerce.—The powers vested in the Commonwealth Parliament by the Commonwealth Constitution Act with respect to oversea trade and commerce will be found on page 15 (sub-section 51 (i)) and pp. 21 and 22 (sub-sections 86–95) of this volume.

§ 2. Commonwealth Legislation affecting Foreign Trade.

1. Customs Act 1901 (No. 6 of 1901).—"An Act relating to the Customs," assented to on the 3rd October, 1901, came into operation by proclamation on the 4th October, 1901. This provided for the establishment of the necessary administrative machinery for all matters pertaining to the Customs, and prescribed, *inter alia*, the manner in which Customs duties shall be computed and paid. It did not, however, determine the rates thereof.

During the interval between the inception of the Commonwealth, viz., on 1st January, 1901, and the coming into operation of the Customs Act 1901, the Customs Acts of the several States were administered by the Executive Government of the Commonwealth, under section 86 of the Constitution.

2. Customs Tariff Act 1902 (No. 14 of 1902).—The first Commonwealth Customs Tariff imposing uniform rates of Customs duty in all the States was introduced in the House of Representatives on the 8th October, 1901. "An Act relating to Duties of Customs," assented to on the 16th September, 1902, made provision that uniform duties of Customs specified in the tariff schedule should be imposed from the 8th October, 1901. From this date trade between the States became free, with, however, the exception, under section 95 of the Constitution Act, of the right of Western Australia to levy duty on the goods from other States for five years. [Repealed by the Customs Tariff Act 1908 (*No. 7 of* 1908).]

3. Sea Carriage of Goods Act 1904 (No. 14 of 1904).—"An Act relating to the Sea Carriage of Goods," assented to on the 15th December, 1904, to commence on the 1st January, 1905, defines the responsibility of shipowners, charterers, masters, or agents in regard to goods carried.

4. Secret Commissions Act 1905 (No. 10 of 1905).—"An Act relating to Secret Commissions, Rebates, and Profits," assented to on the 16th November, 1905, provides that "Any person who, without the full knowledge and consent of the principals directly or indirectly (*a*) being an agent of the principal, accepts or obtains, or agrees or offers to accept or obtain, from any person, for himself, or for any person other than the principal; or (*b*) gives or agrees to give or offers to the agent of a principal, or to any person at the request of an agent of the principal, any gift or consideration as an inducement or reward for any act done or to be done, or any forbearance observed or to be observed, or any favour or disfavour shewn or to be shewn in relation to the principal's affairs or business or on the principal's behalf, or for obtaining or having obtained, or aiding or having aided to obtain for any person an agency or contract for or with the principal, shall be guilty of an indictable offence."

5. Commerce (Trade Descriptions) Act 1905 (No. 16 of 1905).—"An Act relating to Commerce with other Countries," assented to on the 8th December, 1905, and brought into operation by proclamation on the 8th June, 1906, gives power to compel the placing of a proper description on certain prescribed goods, or on packages containing the same, being imports or exports of the Commonwealth.

6. Australian Industries Preservation Act 1906 (No. 9 of 1906).—"An Act for the Preservation of Australian Industries and for the Repression of Destructive Monopolies," assented to 24th September, 1906, provides that any person or any corporation making

or engaging or continuing in any combination "with intent to restrain trade or commerce to the detriment of the public or with intent to destroy or injure by means of unfair competition any Australian industry the preservation of which is advantageous to the Commonwealth, having due regard to the interests of producers, workers, or consumers," or any person or corporation monopolising or attempting or conspiring to monopolise any part of the trade of the Commonwealth with intent to control, to the detriment of the public, the supply or price of any service, merchandise, or commodity, is guilty of an offence. (Amended, see Acts No. 5 of 1908, No. 26 of 1909, and No. 29 of 1910.)

7. **Customs Tariff 1906 (No. 14 of 1906).**—"An Act relating to Duties of Customs" amended the Customs Tariff of 1902 in relation to the duties on harvesters and agricultural implements and machinery and prescribed the prices which were not to be exceeded of Australian harvesters and drills delivered to the purchaser at the railway station or port nearest to the factory where they are made. [Repealed by Customs Tariff Act 1908 (No. 7 of 1908).]

8. **Customs Tariff (South African Preference) 1906 (No. 17 of 1906).**—"An Act relating to Preferential Duties of Customs on certain goods the produce or manufacture of the British Colonies or Protectorates in South Africa which are included within the South African Customs Union," assented to 12th October, 1906, to operate from 1st October, 1906, provides for special preferential rates of duty on certain goods imported from and being the produce of any of the Colonies or Protectorates included within the South African Customs Union.

9. **Australian Industries Preservation Act 1907 (No. 5 of 1908).**—"An Act to amend the Australian Industries Preservation Act 1907," assented to 14th April, 1908, provides additional machinery for procuring evidence of offences against the principal Act.

10. **Customs Tariff 1908 (No. 7 of 1908).**—"An Act relating to Duties of Customs," assented to 3rd June, 1908, repeals section 5 of the Customs Tariff 1902 (No. 14 of 1902) and the schedule of that Act and the whole of the Customs Tariff 1906 (No. 14 of 1906) as from 8th August, 1907, and imposes new rates of Customs duties. This Act provides preference rates of Customs duties on certain "goods the produce or manufacture of the United Kingdom."

11. **Customs Tariff Amendment Act 1908 (No. 13 of 1908).**—"An Act to amend the Tariff Act of 1908," assented to 10th June, 1908. The purpose of this Act is merely to remove possible doubt as to the intention of the original Acts.

12. **Australian Industries Preservation Act 1909 (No. 26 of 1909).**—"An Act to amend the Australian Industries Preservation Acts 1906-1907" formally repeals sections 5 and 8 of the parent Act, which were declared by the High Court to be *ultra vires*. It also provides that, in relation to trade and commerce with other countries or among the States, the payment of rebates, or the refusal to sell, "either absolutely or except upon disadvantageous conditions," with the purpose of promoting exclusive dealing, shall be an offence.

13. **Customs (Interstate Accounts) Act 1910 (No. 9 of 1910).**—Repeals Sections 272 and 273 of the Customs Act 1901. These sections relate to the passing of dutiable goods from one State to another State of the Commonwealth, and their repeal was consequent on the termination of the book-keeping system of accounts between the Commonwealth Government and the Governments of the States, in favour of a system of payments based on population.

14. **Australian Industries Preservation Act 1910 (No. 29 of 1910).**—"An Act to amend the Australian Industries Preservation Act 1906-1909." This Act removes from the principal Act the obligation to prove intent to restrain trade and detriment to the public.

15. **Customs Act 1910 (No. 36 of 1910).**—"An Act to amend the Customs Act 1901" gives the Customs control of all goods for export, the exportation of which is subject to compliance with any condition or restriction under any Act or regulation, extends the machinery provisions for the prevention of the importation or exportation of goods which are prohibited imports or exports respectively, amends the provisions for the payment of

duty under protest, gives the Governor-General power to prescribe the nature, size, and material of the coverings for packages, and the maximum or minimum weight or quantity to be contained in any one package of goods imported or exported, or transported coastwise from one State to another; the condition of preparation or manufacture for export of any articles used for, or in the manufacture of, food or drink by man; the conditions as to purity, soundness, and freedom from disease to be conformed to by the goods for export.

16. **Customs Tariff 1910 (No. 39 of 1910).**—" An Act relating to Duties of Customs," amends the Customs Tariff of 1908 by more explicit definition of certain tariff items, and by alteration of some rates of duty.

17. **Customs Tariff 1911 (No. 19 of 1911).**—" An Act relating to Duties of Customs," amends the Customs Tariff 1908–10 by alteration of some rates of duty.

18. **Interstate Commission Act 1912 (No. 33 of 1912).**—In accordance with the provisions of the Commonwealth Constitution Act—sections 101 to 104 (see page 23 *ante*)—an Act relating to the Interstate Commission was assented to on the 24th December, 1912. This Act provides for the appointment of the Commission, and cognate matters.

19. **Trading with the Enemy Act 1914 (No. 9 of 1914).**—" An Act relating to the control of trade during the war with Germany and Austria-Hungary." This Act was amended by Act No. 17 of 1914.

20. **Customs Act 1914 (No. 19 of 1914).**—Amends the Customs Act 1901–10 by extending the powers of the Governor-General to prohibit the exportation of goods in time of war.

21. **The Income Tax Assessment Act 1915 (No. 34 of 1915) and Amendment thereto (No. 47 of 1915).**—Provide that " In the case of a person selling goods in Australia on account of a person not resident in Australia, or on account of a company not registered in Australia, the principal shall be deemed to have derived from such sale a taxable income equal to five pounds per cent. upon the price at which the goods were sold. The person selling the goods shall be assessable on the taxable income as the agent for the principal, and shall be personally liable for the payment of the tax to the extent of the tax payable on goods sold by him after the 30th June, 1915. Goods shall be deemed to be sold in Australia on account of a person not resident in Australia, if any person in Australia receives a commission in respect of the sale of the goods or is paid a salary for obtaining orders for or for influencing the sale of the goods."

22. **Customs Tariff Validation Act (No. 6 of 1917).**—" An Act to provide for the validation of—(1) Collections of Customs duties under tariff proposals introduced into the House of Representatives on the 3rd December, 1914; (2) the remission of Customs duty on wheat as from the 12th December, 1914; (3) the remission of Customs duty on oats as from the 27th February, 1915; and (4) the restoration of the Customs duties on wheat and oats from the 12th November, 1915."

23. **Apple Bounty Act (No. 21 of 1918).**—This Act appropriates from the Consolidated Revenue Fund the sum of £12,000, for the payment, to the grower, of a bounty of $\frac{7}{8}$d. per pound upon the export of apples grown and evaporated in Australia under certain prescribed conditions, and sold to the Imperial Government for delivery between the 1st April and 31st August, 1918.

24. **Customs Tariff Validation Act 1919 (No. 17 of 1919).**—Provides for the validation of collections of Duties of Customs under Tariff proposals introduced into the House of Representatives on the following dates, namely:—10th August, 1917; 26th September, 1917; and 25th September, 1918.

25. **Customs Tariff of 1920.**—The Tariff Schedule which was submitted to Parliament on the 25th March, 1920, provides a British Preferential Tariff, an Intermediate Tariff, and a General Tariff. The Tariff Act will provide that the Preferential Tariff or the Intermediate Tariff may, under reciprocal arrangements, be extended to other British Dominions, and that the Intermediate Tariff may in certain circumstances apply to foreign countries.

26. **Customs Act of 1920 (No. 41 of 1920).**—" An Act to amend the Customs Act 1901–16," assented to 10th November, 1920. This Act indicates the rates of exchange, which shall be used under various circumstances in computing the value for duty of imported goods.

27. **Tariff Board Bill.**—On the 6th July, 1921, the Minister for Trade and Customs brought in a Bill for an Act to establish a Tariff Board. The Bill passed the House of Representatives, and with recommendations for some minor amendments, passed its third reading in the Senate. The Bill provides that—(1) The Minister shall refer to the Board for inquiry and report the following matters :—(a) the classification of goods under all Tariff Items which provide for classification under by-laws; (b) the determination of the value of goods for duty under section 160 of the *Customs Act* 1901–1920; (c) any dispute arising out of the interpretation of any Customs Tariff or Excise Tariff, or the classification of articles in any Tariff, in which an appeal is made to the Minister from the decision of the Comptroller-General; (d) the necessity for new, increased, or reduced duties, and the deferment of existing or proposed deferred duties; (e) the necessity for granting bounties for the encouragement of any primary or secondary industry in Australia; (f) the effect of existing bounties or of bounties subsequently granted; (g) any proposal for the application of the British Preferential Tariff or the Intermediate Tariff to any part of the British Dominions or any foreign country, together with any requests received from Australian producers or exporters in relation to the export of their goods to any such part or country; (h) any complaint that a manufacturer is taking undue advantage of the protection afforded him by the Tariff, and in particular in regard to his (i) charging unnecessarily high prices for his goods; or (ii) acting in restraint of trade to the detriment of the public, and shall not take any action in respect of any of those matters until he has received the report of the Board. (2) The Minister may refer to the Board for their inquiry and report the following matters :—(a) the general effect of the working of the Customs Tariff and the Excise Tariff, in relation to the primary and secondary industries of the Commonwealth; (b) the fiscal and industrial effects of the Customs laws of the Commonwealth; (c) the incidence between the rates of duty on raw materials and on finished or partly finished products; and (d) any other matter in any way affecting the encouragement of primary or secondary industries in relation to the Tariff. (3) If the Board finds on inquiry that any complaint referred to it under paragraph (h) of sub-section (1) of this section is justified, it may recommend—(a) that the amount of duty payable on the goods the subject of the complaint be reduced or abolished; or (b) that such other action as the Board thinks desirable be taken—but shall, before it makes any such recommendation, consider carefully the conditions obtaining in the industry as a whole.

28. **Customs Tariff (Industries Preservation) Bill—(Anti-dumping.)**—On the 6th July 1921, the Minister for Trade and Customs moved a resolution that after inquiry and report by the Tariff Board, special duties should be collected in the following cases, when the importation of the goods referred to might be detrimental to an Australian industry: In the case of goods sold for export to Australia at a price less than the fair market price for home consumption or at a price which is less than a reasonable price (reasonable price being defined as the cost of production plus 20 per cent. plus free on board charges) a special dumping duty shall be collected equal to the difference between the price at which the goods were sold and a fair market price. Similar provision is made for goods consigned to Australia for sale. With regard to goods exported to Australia at rates of freight less than the rates prevailing at the time of shipment, there shall be collected a dumping freight duty equal to 5 per cent. of the fair market value of the goods at the time of shipment. Special duties are also proposed in the case of goods imported from countries whose currency is depreciated.

§ 3. Commonwealth Trade Commissioners.

The first permanent Trade Commissioner appointed to represent the Commonwealth of Australia in a foreign country was Mr. (now Sir) Henry Yule Braddon, who was appointed in September, 1918, to represent Australia in the United States of America. In July, 1919, Mr. Braddon was succeeded by Mr. Mark Sheldon. The Commissioner's office is at 61 Broadway, New York.

Early in 1921, Mr. Edward S. Little was appointed as Commonwealth Trade Commissioner in China, with offices at Shanghai and Hong Kong.

§ 4. Regulation of Trade during the War.

In Official Year Book No. 11 (page 550) a statement was given showing the authority for the regulation of trade during the war. Reference was also made to the appointment of a Luxuries Board to control the imports of goods of a luxurious nature, and to the establishment of the Commonwealth Board of Trade.

§ 5. Method of Recording Imports and Exports.

1. **Value of Imports.**—The recorded value of goods imported from countries beyond the Commonwealth represents the amount on which duty is payable or would be payable if the duty were charged *ad valorem*. The value of goods is taken to be 10 per cent.* in advance of the fair market value in the principal markets of the country whence the goods were exported, the increase being intended to represent roughly the insurance, freight and other charges to the place of landing. Section 157 of the Customs Act provides that when the invoice value of imported goods is shown in any currency other than British currency, the equivalent value in British currency shall be ascertained according to a fair rate of exchange. Under this section it was the practice of the Department of Trade and Customs, until the 8th December, 1920, to convert on the basis of the mint par of exchange. Since the date mentioned, in consequence of a ruling of the High Court, all conversions have been based on the commercial rates of exchange. As the values for statistical purposes, as well as those for duty purposes, were based on the mint par, it follows that the recorded values of imports, during the past five years, from countries such as France and Italy, where the pound sterling has been at a premium, have been in excess of their commercial value, whereas imports from Japan, the United States of America and other countries where sterling was at a discount, have not been given their full commercial value. Further reference will be made to this matter in the following sections.

2. **Value of Exports.**—The recorded value of goods exported is taken to represent the value in the principal markets of the Commonwealth in the ordinary commercial acceptation of the term. Some modification of this practice has, however, been necessary in respect of products affected by the policy of price-fixing arising from the war.

3. **Records of Past Years.**—In the years preceding federation each State independently recorded its trade, and in so doing did not distinguish other Australian States from foreign countries. As the aggregation of the records of the several States is, necessarily, the only available means of ascertaining the trade of Australia for comparison with later years, it is unfortunate that past records of values and the direction of imports were not on uniform lines, admitting of the preparation of a record for Australia as a whole. On the introduction of the Customs Act 1901, the methods of recording values were made uniform throughout the States, but it was not until September, 1903, that a fundamental defect in the system of recording transhipped goods was remedied. Up to this date goods arriving in any Australian port for transhipment to a port in another Australian State were recorded at the latter port only, where they were ordinarily recorded as from the transhipping State, and not as an import from the oversea country.

In recording exports an analogous defect also existed in most of the States, since goods despatched from one Australian State for transhipment in another State to an oversea country were simply recorded in the former as an export to the transhipping State; thus no proper record of the export oversea was made. Owing to this defect the oversea trade prior to September 1903 is understated by an amount which it is impossible to estimate accurately, since it varies with the development of the shipping facilities of the States concerned. To discover the direction of the transhipped trade is not possible. The figures presented in the tables hereinafter are therefore the values as recorded, and must be taken as subject to the defects explained.

Prior to 1905 the value of ships imported or exported was not included in the returns of trade.

* Although cost of freight and insurance has risen materially in consequence of the war, no further addition has been made to the value of imports, and cognisance should be taken of this fact in regard to imports during 1914–15 and subsequent years referred to throughout this section.

4. Ships' Stores.—Prior to 1906 goods shipped in Australian ports on board oversea ships as ships' stores were included in the general exports. From 1906, ships' stores have been specially recorded as such, and omitted from the return of exports.

The value of these stores shipped each year, distinguishing bunker coal, is shewn below :—

VALUE OF STORES SHIPPED IN AUSTRALIAN PORTS BY OVERSEA VESSELS.

Period.	Bunker Coal.	All Stores (including Coal).	Period.	Bunker Coal.	All Stores (including Coal).
	£	£		£	£
1906	575,471	875,966	1914		
1907	663,724	998,897	(1st six months)	533,288	771,581
1908	867,707	1,196,106	1914–15 ..	829,875	1,587,757
1909	781,113	1,071,677	1915–16 ..	719,510	1,544,872
1910	740,567	1,080,133	1916–17 ..	748,852	1,676,116
1911	858,783	1,238,446	1917–18 ..	632,910	1,389,291
1912	1,008,259	1,431,985	1918–19 ..	857,507	1,765,367
1913	1,018,595	1,458,702	1919–20 ..	1,487,872	2,688,371

§ 6. Oversea Trade.

1. Total Oversea Trade.—The following table shews the total trade of the Commonwealth with oversea countries from the earliest date for which records are available.* In consequence of the defects of record referred to in the preceding section, the results can be only approximate to the actual figures. The very marked rise and sudden fall in the value of imports during the period 1837 to 1842 were contemporaneous with heavy land speculation and a subsequent severe financial crisis. The great increase of trade in the early fifties was due to the discovery of gold. In the State of Victoria the value of imports from oversea countries increased from £500,000 in 1851 to nearly £11,000,000 in 1853, and to £13,000,000 in 1854; while in New South Wales similar imports rose from £1,390,000 in 1851 to £5,500,000 in 1854, when the total imports into the Commonwealth reached the sum of £34 13s. 10d. per head, and the total trade £56 3s. 10d. per head of the population. The rapid influx of persons anxious to share the good fortunes of these times, however, soon reduced the value of the trade per head, till, in 1858, it had declined to £31 19s. 6d. per head. The period 1867–1872 shewed a marked reduction in the value of trade per head. For some years prior to this period New South Wales had experienced a succession of indifferent seasons, and Victoria was suffering from a congested labour market consequent on the decline of alluvial gold-mining in that State. This congestion of the labour market during the years 1862 to 1866 gave rise to the agitation for a protective tariff to provide employment in manufactures, and in April 1866, the Tariff Act, which expressed the protective policy thenceforward adhered to in Victoria, was assented to.

OVERSEA TRADE OF THE COMMONWEALTH, 1826 TO 1920–21.

Period.	Recorded Value.			Value per Inhabitant.(a)			Percentage of Exports on Imports.
	Imports.	Exports.	Total.	Imports.	Exports.	Total.	
	£1,000.	£1,000.	£1,000.	£ s. d.	£ s. d.	£ s. d.	%
1826–30 ..	638	153	791	10 12 5	2 10 11	13 3 4	23.9
1831–35 ..	1,144	613	1,757	11 19 10	6 8 6	18 8 4	53.6
1836–40 ..	2,283	1,112	3,395	14 15 9	7 4 1	21 19 10	48.7
1841–45 ..	1,906	1,378	3,284	9 0 5	6 10 5	15 10 10	72.3
1846–50 ..	2,379	2,264	4,643	6 18 10	6 12 2	13 11 0	95.2

(a) Reckoned on mean population of the year.

* The figures given for the years 1826 to 1865 represent the annual averages for the quinquennial periods. The trade of the individual years will be found in the Official Year Book No. 7 and earlier

OVERSEA TRADE OF THE COMMONWEALTH, 1826 TO 1920-21—*continued.*

Period.	Recorded Value. Imports.	Recorded Value. Exports.	Recorded Value. Total.	Value per Inhabitant.(a) Imports.	Value per Inhabitant.(a) Exports.	Value per Inhabitant.(a) Total.	Percentage of Exports on Imports.
	£1,000.	£1,000.	£1,000.	£ s. d.	£ s. d.	£ s. d.	%
1851–55 ..	11,931	11,414	23,345	19 12 5*	18 15 4	38 7 9	95.7
1856–60 ..	18,816	16,019	34,835	18 6 1	15 11 8	33 17 9	85.1
1861–65 ..	20,132	18,699	38,831	15 17 1	14 14 9	30 11 10	93.0
1866–70 ..	18,691	19,417	38,108	12 7 4	12 16 11	25 4 3	103.9
1871 ..	17,017	21,725	38,742	10 3 3	12 19 6	23 2 9	127.7
1872 ..	18,833	22,518	41,351	10 18 9	13 1 7	24 0 4	119.6
1873 ..	24,567	26,370	50,937	13 17 10	14 18 2	28 16 0	107.4
1874 ..	24,554	25,646	50,200	13 9 9•	14 1 8	27 11 5	104.5
1875 ..	24,939	24,978	49,917	13 6 2	13 6 7	26 12 9	100.1
1876 ..	23,963	23,540	47,503	12 8 7	12 4 2	24 12 9	98.2
1877 ..	25,797	23,107	48,904	12 18 8	11 11 8	24 10 4	89.6
1878 ..	26,181	23,773	49,954	12 14 0	11 10 8	24 4 8	90.8
1879 ..	24,233	21,184	45,417	11 7 10	9 19 2	21 7 0	87.4
1880 ..	22,939	27,255	50,194	10 8 10	12 8 1	22 16 11	118.8
1881 ..	29,067	27,528	56,595	12 16 2	12 2 8	24 18 10	94.7
1882 ..	36,103	27,313	63,416	15 7 7	11 12 9	27 0 4	75.6
1883 ..	35,454	30,058	65,512	14 9 9	12 5 8	26 15 5	84.8
1884 ..	36,988	28,708	65,696	14 9 6	11 4 8	25 14 2	77.6
1885 ..	36,862	26,667	63,529	13 18 2	10 1 3	23 19 5	72.3
1886 ..	34,179	21,700	55,879	12 9 4	7 18 4	20 7 8	63.5
1887 ..	29,572	23,421	52,993	10 8 8	8 5 3	18 13 11	79.2
1888 ..	36,881	28,900	65,781	12 11 7	9 17 2	22 8 9	78.4
1889 ..	37,577	29,553	67,130	12 8 8	9 15 7	22 4 3	78.6
1890 ..	35,168	29,321	64,489	11 6 4	9 8 9	20 15 1	83.4
1891 ..	37,711	36,043	73,754	11 16 0	11 5 6	23 1 6	95.6
1892 ..	30,107	33,370	63,477	9 4 0	10 3 10	19 7 10	110.8
1893 ..	23,765	33,225	56,990	7 2 7	9 19 4	17 1 11	139.8
1894 ..	21,897	32,131	54,028	6 9 0	9 9 4	15 18 4	146.7
1895 ..	23,195	33,644	56,839	6 14 1	9 14 6	16 8 7	145.0
1896 ..	29,658	32,964	62,622	8 8 5	9 7 2	17 15 7	111.1
1897 ..	31,958	37,783	69,741	8 18 3	10 10 9	19 9 0	118.2
1898 ..	31,481	40,165	71,646	8 12 11	11 0 7	19 13 6	127.6
1899 ..	34,330	48,599	82,929	9 6 0	13 3 5	22 9 5	141.6
1900 ..	41,388	45,957	87,345	11 1 3	12 5 9	23 7 0	111.0
1901 ..	42,434	49,696	92,130	11 3 11	13 2 2	24 6 1	117.1
1902 ..	40,676	43,915	84,591	10 11 4	11 8 3	21 19 7	108.0
1903 ..	37,811	48,250	86,061	9 14 3	12 7 10	22 2 1	127.6
1904 ..	37,021	57,486	94,507	9 7 9	14 11 7	23 19 4	155.3
1905 ..	38,347	56,841	95,188	9 11 9	14 4 1	23 15 10	148.2
1906 ..	44,745	69,738	114,483	11 0 4	17 3 6	28 3 10	155.9
1907 ..	51,809	72,824	124,633	12 11 3	17 13 2	30 4 5	140.6
1908 ..	49,799	64,311	114,110	11 17 5	15 6 8	27 4 1	129.1
1909 ..	51,172	65,319	116,491	11 19 5	15 5 7	27 5 0	127.6
1910 ..	60,014	74,491	134,505	13 14 8	17 0 10	30 15 6	124.1
1911 ..	66,968	79,482•	146,450	14 18 3	17 14 0	32 12 3	118.7
1912 ..	78,159	79,096	157,255	16 16 7	17 0 7	33 17 2	101.2
1913 ..	79,749	78,572	158,321	16 12 0	16 7 2	32 19 2	98.5
First six months 1914	39,777	37,930	77,707	8 2 7	7 15 0	15 17 7	95.4
1914–15 ..	64,432	60,593	125,025	13 0 10	12 5 3	25 6 1	94.0
1915–16 ..	77,745	74,778	152,523	15 15 3	15 3 3	30 18 6	92.3
1916–17 ..	76,229	97,955	174,184	15 12 7	20 1 10	35 14 5	128.5
1917–18 ..	62,335	81,429	143,764	12 12 7	16 10 0	29 2 7	130.6
1918–19 ..	102,335	113,964	216,299	20 6 10	22 13 1	42 19 11	111.4
1919–20 ..	98,974	149,824	248,798	18 17 3	28 11 1	47 8 4	151.4
1920–21(b)	163,334	132,029	295,363	30 11 0	24 13 11	55 4 11	80.8

(a) Reckoned on mean population of the year. (b) Preliminary figures subject to alteration.

The graphs illustrating the movement of the oversea trade of Australia (see pages 505 and 506) shew that periods of depressed trade have been recurrent at more or less regular intervals of from seven to nine years, and, measured by population, each succeeding depression since 1855 carried the trade per head lower than the preceding one, until the lowest point was reached in 1894.

The year 1892 marked the beginning of a period of acute financial stress, culminating in the commercial crisis of 1893. The collapse of these years is plainly reflected in the trade records of that period, the trade of 1894 falling to £54,028,227, a decline of no less than 26.75 per cent. in three years. In 1895 there was a slight recovery, and a continuous upward movement until 1901, when the total reached £92,130,183, or £24 6s. 1d. per head. A decline, due to drought, in the exports of agricultural, pastoral, and dairy produce, reduced the trade of 1902 to £84,591,037, but although in the next year there was a further shrinkage in the exports of agricultural produce, the increase in the value of the exports of metals, specie, butter, and wool was so large as to effect an increase in the total. From 1902 the increase in the value of trade continued, till in 1907 it reached the amount of £124,633,280, equal to £30 4s. 5d. per inhabitant.

The imports during 1907 were, doubtless, to some extent inflated by the importation of goods in anticipation of the tariff revision of that year. The trade of 1908 shews a decline of £10,523,000 as compared with 1907, of which £8,513,000 was in the value of exports, notwithstanding an increase of £3,447,767 in the export of gold and specie. This decline in the value of exports was largely due to reduced prices ruling for wool and metals in consequence of the financial crisis in the United States during the previous year, and in lesser degree to the smaller exports of agricultural and pastoral produce, due to the unfavourable season experienced in some of the States.

The trade of 1909 per head of population was slightly more than in 1908, notwithstanding that the gold exports were less by £5,193,587. In 1910 the value of imports per head was higher than in any year since 1885, and the value of exports was—excepting in the years 1906 and 1907—the highest since 1857. The high value of exports is particularly striking when considered in conjunction with the exceptionally small exports of gold. The exports of gold, already much reduced in 1909 as compared with 1908, were in 1910 still further reduced by £4,264,368 to £4,108,783, the smallest recorded since 1892. During 1911 the exports of gold bullion and specie again increased to £11,540,782. The continued increase in the value of imports during 1912 and 1913, while the value of exports remained stationary, is referred to on page 496.

The trade of 1914–15, and subsequent years, was seriously disturbed by conditions arising from the war such as the dislocation of shipping and increased prices. The shortage of shipping was particularly marked in 1917–18, when, in order to conserve space for more essential requirements, the importation of goods which were considered to be in the nature of luxuries was prohibited or restricted.

The effect of prices on the value of exports is shewn in the "Price Levels" given in § ii., from which it will be seen that on the basis of uniform prices the exports during the years 1914–15 to 1918–19 were less than for the years immediately preceding the war. The exports of 1919–20, notwithstanding that they include accumulations of wool and wheat, which could not be shipped earlier, represent a volume or quantitative mass only about 11 per cent. greater than those of 1913; the recorded values are 91 per cent. higher.

The value of the exports during 1919–20, however, was sufficient to establish a very substantial balance in favour of the Commonwealth, though this balance was not actually

so large as the official records would make it appear to be. This is due to the understatement of the value of imports as a result of the conversion of values on the par of exchange, whereas, their commercial values, *i.e.*, the value of exports which would be required to effect a settlement of exchange would be determined by the current commercial rates of exchange. The net result of converting values on the par of exchange is that the value of imports during 1919–20 is understated by about 7 per cent. The figures for 1920–21 are similarly defective, though in a lesser degree, as from the 8th December, 1920, values have been converted on the basis of the current rates of exchange.

During the year 1920–21, the value of imports increased in a very marked degree. This was due, in a large measure, to the fulfilment of long standing orders which it had been impossible to execute earlier. In their anxiety to replenish stocks which had become depleted during the war, and to take advantage of the free spending of soldiers' gratuities and repatriation moneys, Australian importers ordered freely, in the belief that their orders could not be satisfied immediately, but hoping to get a percentage thereof. The trade depression in Great Britain and the cancellation of foreign orders, however, enabled manufacturers there to devote their attention to Australian orders, with the result that shipments, which it had been expected would be spread over a long period were received in quick succession. The rapidity with which the goods arrived created some difficulty in providing exchange, and the banks found it necessary to restrict credit for import business.

The decline in the value of exports as compared with 1919–20 was mainly due to reduced exports of wool, at lower prices, and to smaller exports of meats, flour, hides and skins, tallow, copper, and lead. As a set-off against these items there was an increase in the exports of wheat of nearly £12,000,000, and in butter of nearly £8,000,000.

The variations in the composition of the trade will be seen from the tables in § 9 following.

2. **Alteration of Trade Year.**—The desirability had long been felt of bringing the trade year into conformity with the seasons for the export of agricultural and pastoral products, but a disinclination to break the continuity of records had, hitherto, prevented the change. As it was obvious that trade itself, and not merely the records, would be seriously disturbed by the war, the time appeared to be peculiarly opportune for making the alteration. The trade returns were, therefore, closed as on the 30th June, 1914, and the new year started from the 1st July. The year 1914–15 thus includes nearly eleven months under war conditions.

3. ***Ratio between Exports and Imports.***—The foregoing table shews the percentage of exports on imports for each year.* From this it will be seen that, with few exceptions, due to temporary dislocations of trade, prior to 1892 the balance of trade has been on the side of imports, but from 1891 to 1912 the reverse has been the case. The excess of imports in the earlier years represents the introduction of capital in the form of Government loans and for investment in private undertakings, and the excess of exports represents mainly the interest and profit on the earlier investments, repayment of loans to foreign bondholders, and also freight on trade, which is carried mainly by ships of the United Kingdom and foreign countries. As the introduction of new capital and the payments for interest on existing investments and for shipping and other services are continually operating in opposite directions at the same time in the statistics of trade, it follows that it is the balance only of these transactions which is reflected in the excess of imports or exports.

* For individual years 1826 to 1870 see Official Year Book, No. 7, and previous issues.

The marked diminution of the excess of exports is a striking feature of the trade returns for 1912. The decline in the ratio of exports to imports has been due, mainly, to loans raised in London by the Governments of the various States of the Commonwealth. The proceeds of these loans, of course, swell the import returns, but, as no immediate payment beyond an instalment of interest has to be made in return, the export figures are affected to a very minor degree, until such time as the principal of the debt is repaid. The larger number of immigrants had, also, to some extent affected the balance of trade by the introduction of capital. The following table presents the balance of trade of the Commonwealth as shewn by the records of imports and exports for each year from 1902, and, also, the modification of those figures as affected by loans raised in London by the Governments of the States and the Commonwealth. Owing to the circumstances of the case, the figures given must be taken as only broadly approximate to the truth.

EFFECT OF LOANS ON THE RECORDED BALANCE OF COMMONWEALTH TRADE, 1902 TO 1920-21.

Year.	Excess of Exports as Recorded.		Net Amount of Debt Raised or Redeemed (–) in London. (b)	Excess of Exports Modified by Elimination of Loans to Commonwealth and States' Governments.	
	Amount.	Per cent.	Amount.	Amount.	Per cent.
	£1,000.		£1,000.	£1,000.	
1902	3,239	100	5,014	8,253	100
1903	10,439	322	1,658	12,097	146
1904	20,465	632	753	21,218	257
1905	18,494	571	1,968	20,462	248
1906	24,993	771	– 5,308	19,685	238
1907	21,015	649	– 2,259	18,756	227
1908	14,512	448	6,088	20,600	249
1909	14,147	436	2,562	16,709	202
1910	14,477	447	– 2,904	11,573	140
1911	12,514	386	3,123	15,637	189
1912	937	29	12,205	13,142	159
1913	– 1,178	– 36	19,666	18,488	225
1914 (January to June) ..	– 1,847	*a*	*a*	– 1,847	*a*
1914–15	– 3,839	– 119	5,151	1,312	16
1915–16	– 2,966	– 91	2,827	– 139	– 2
1916–17	21,726	670	11,695	33,421	405
1917–18	19,095	590	17,373	36,468	442
1918–19	11,629	359	– 2,908	8,721	106
1919–20	50,849	1,570	5,212	*c*56,061	679
1920–21*d*	– 31,305	968	3,852	– 27,453	– 333

(*a*) Prior to June, 1914, the figures relating to debt were six months in advance of the trade figures since that date the periods to which the figures relate are identical.

(*b*) See note to the following table.

(*c*) This amount should be reduced on account of conversion methods to about £49,000,000, and the corresponding percentage to about 590.

(*d*) Preliminary figures subject to amendment.

The trade balances would be further modified by the loans of local governing bodies, by the imports of capital for private enterprises, and by the addition to or absorption of bank balances held in London on Australian account. Particulars of such transactions are, however, not available.

Since the outbreak of war the trade balances for single years have been completely upset by the difficulties of transport. Consequently, it is necessary for proper observation to take the total transactions during the six years from the 1st July, 1914, to the 30th June, 1920.

The figures for the decade before the war shew that an annual excess of exports of about £16,000,000 was required to meet the obligations of this community on account of interest and for shipping and other services performed for it by persons outside the Commonwealth. Loans since raised in London by the States, and the loans and advances made by the Imperial Government to the Commonwealth Government, have increased this annual liability by between six and seven millions sterling in 1920–21; the average increase on account of each of the seven years ending June, 1921, being about £4,000,000 over the pre-war liability, which added to the pre-war liability, represents an annual liability throughout the period mentioned of about £20,000,000. Up to the end of the year 1919–20 this liability had been fully met and those was at that time some accumulation of Australian funds in London. The excessive imports during 1920–21, after allowing for new loans, left an adverse balance on the trade of that year, of £27,453,000, whereas the liabilities for the year required an excess of exports of over £22,000,000; consequently the value of exports for the year was about £50,000,000 short of the amount required to pay for the imports and to meet the standing obligations on account of interest, etc. The position with regard to exchange arising from this adverse balance of trade is indicated by the selling price of "On demand" drafts on London, which since December, 1920, has been 37s. 6d. per £100. At no time since the establishment of the Commonwealth in 1901 has the price for similar drafts been so high. In 1916, as a result of drought, and the general dislocation due to the war, the price for some months was 25s. From 1905 to the outbreak of war the price never exceeded 15s. for more than a very brief period.

The general relationship between the balance of trade of the Commonwealth and the borrowing of money abroad is demonstrated by the following figures:—

COMMONWEALTH BALANCE OF TRADE AND PUBLIC DEBT, 1867 TO 1921.

Period.	Annual Average.					
	Imports.	Exports.	Recorded Excess of Imports.	Recorded Excess of Exports.	New Debt. (a)	Excess of Exports modified by elimination of Loans.
	Mill. £.	Mill. £.	Mill. £.	Mill. £.	Mill. £.	Mill. £.
1867–1871	17.8	20.0	..	2.2	1.7	3.9
1872–1876	23.4	24.6	..	1.2	2.6	3.8
1877–1881	25.6	24.6	1.0	..	5.2	4.2
1882–1886	35.8	26.8	9.0	..	10.6	1.6
1887–1891	35.4	29.4	6.0	..	7.4	1.4
1892–1896	25.6	33.0	..	7.4	3.8	11.2
1897–1901	36.2	44.4	..	8.2	3.2	11.4
1902–1906	39.6	55.2	..	15.6	0.8	16.4
1907–1911	56.0	71.2	..	15.2	1.3	16.5
1912–1915–16 (4½ years) ..	75.5	73.5	2.0	..	10.0	8.0
1916–17–1920–21 (5 years) ..	100.6	115.0	..	14.4	7.0	21.4(b)

(a) Subsequent to 1897 these figures relate to moneys raised outside of Australia only. Prior to 1893 the amounts raised locally were insignificant, but it is probable that the amount of new debt raised during 1892–6 is somewhat overstated. Loans raised by Local Government Bodies are not included. Loans for redemption purposes are not included, nor are loans from the Imperial Government for war purposes, the proceeds of which were spent abroad, and consequently did not affect Australian imports.

(b) Adjusted to eliminate defects of conversion of import values this figure would be 20.0.

§ 7. Direction of Trade.

1. **Country of Shipment and Country of Origin.**—The following table shews, for the years 1910 and 1919-20, the value of imports recorded as direct from the principal countries, and also the disposition of the value of imports against the countries where they were produced or manufactured. A similar comparison for earlier years will be found in previous issues of this work.

COMMONWEALTH IMPORTS FROM COUNTRIES OF SHIPMENT AND COUNTRIES OF ORIGIN, 1910 AND 1919-20.

Country.	Imports according to—							
	Country of Shipment.				Country of Origin.			
	1910.		1919-20.		1910.		1919-20.	
	Value.	Per cent.	Value.	Per cent.	Value.	Per cent.	Value.	Per cent.
	£		£		£		£	
United Kingdom ..	36,646,441	61.06	43,112,670	43.56	30,420,540	50.69	38,516,436	38.92
BRITISH POSSESSIONS—								
Canada	*649,507*	*1.08*	2,640,383	2.68	*802,045*	*1.34*	*2,640,280*	*2.67*
Ceylon	769,985	1.28	1,675,871	1.69	760,238	1.27	1,675,443	1.69
Hong Kong ..	244,724	0.42	755,690	0.76	3,152	0.00	22,440	0.02
India	2,668,862	4.44	4,507,602	4.55	2,786,479	4.64	4,777,905	4.83
New Zealand ..	2,203,806	3.67	2,392,560	2.41	2,102,149	3.50	1,930,049	1.95
Straits Settlements	588,177	0.98	1,363,905	1.38	164,792	0.27	354,179	0.36
Other British Possessions	740,588	1.24	2,958,781	2.99	951,635	1.59	3,833,414	3.87
Total British Possessions ..	7,865,649	13.11	16,294,792	16.46	7,570,490	12.61	15,233,710	15.39
Total British Countries ..	44,512,090	74.17	59,407,462	60.02	37,991,030	63.30	53,750,146	54.31
FOREIGN COUNTRIES—								
Austria-Hungary ..	10,189	0.02	1,163	0.00	311,361	0.52	2,255	0.00
Belgium	1,242,867	2.07	170,588	0.17	853,708	1.42	276,940	0.28
China	79,270	0.13	301,826	0.30	389,923	0.65	1,094,427	1.11
France	501,584	0.84	340,280	0.34	1,953,735	3.26	2,422,304	2.45
Germany ..	3,778,666	6.30	3,085	0.00	5,215,146	8.69	13,474	0.01
Japan	718,402	1.20	4,262,000	4.31	739,534	1.23	4,222,511	4.27
Java	539,407	0.90	6,405,452	6.47	548,611	0.91	6,327,935	6.39
Netherlands ..	*223,999*	*0.37*	*111,975*	*0.12*	*369,055*	*0.61*	*196,712*	*0.20*
Norway	550,631	0.91	755,810	0.76	621,239	1.03	831,909	0.84
Spain	33,700	0.06	12,890	0.02	128,793	0.21	198,838	0.20
Sweden	360,033	0.60	748,814	0.76	520,121	0.87	793,945	0.80
Switzerland ..	31,765	0.05	122,788	0.12	1,023,723	1.72	959,826	0.97
United States ..	6,494,829	10.82	23,768,030	24.02	7,659,150	12.76	23,826,313	24.07
Other Foreign Countries	936,250	1.56	2,562,129	2.59	1,689,022	2.82	4,058,757	4.10
Total Foreign Countries ..	15,502,261	25.83	39,566,830	39.98	22,023,321	36.70	45,224,146	45.69
Total Imports from all Countries ..	60,014,351	100.00	98,974,292	100.00	60,014,351	100.00	98,974,292	100.00

The only country from which the value of direct imports exceeds by any large amount the value of the imports of goods which were manufactured or produced therein, that is to say, the only country which shews a balance o' any magnitude as a distributor of the goods of other countries to Australia, is the United Kingdom. The records of imports therefrom during the year 1919-20 shew that while the total direct imports from that country amounted to £43,112,670, the value of the manufactures or produce of the United Kingdom itself, imported from all countries whatsoever during the same year, was £38,516,436. From the foregoing figures it appears that goods to the value of *at least* £4,596,234 were received from other countries through the United Kingdom. There is reason to believe, however, that in some instances goods shipped at intermediate ports, on a through voyage, between the United Kingdom and Australia are recorded as from the United Kingdom, instead of from the actual country of shipment.

Other countries which prior to the war showed balances as distributors to Australia, though absolutely of much less amount, were Belgium, Canada, Hong Kong, New Zealand, Straits Settlements, and Ceylon. The countries mentioned were, of course,

not the only countries through which goods were indirectly imported into Australia, for the direct imports from other countries included considerable values which were not the produce of those countries. Prior to the war large quantities of goods not manufactured in France or Germany were shipped to Australia from those countries. Such transactions were, however, more than balanced by French and German goods received through the United Kingdom and other countries.

2. **Direct Imports according to Country of Shipment.**—The following table shews the average yearly value of imports from each of the principal countries during each succeeding quinquennial period from 1899 to 1919, and for the year 1919–20. The countries mentioned in this table are those in which the goods were shipped or whence they were directly consigned to Australia.

IMPORTS INTO THE COMMONWEALTH FROM VARIOUS COUNTRIES, 1899 TO 1919–20.

Country.	Yearly Average for Quinquennial Periods.				Year 1919–20.
	1899–1903.	1904–8.	1909–13.	1914–5–1918–9.	
	£	£	£	£	£
United Kingdom ..	23,107,178	26,789,801	40,171,599	36,093,175	43,112,670
British Possessions—					
Bismarck Archipelago ..	..	..	..	..	(a)654,584
Canada	285,312	292,801	857,133	1,761,200	2,640,383
Ceylon	481,627	679,572	816,220	1,300,167	1,675,871
Fiji	91,918	89,425	369,276	682,608	298,009
Hong Kong	299,872	279,030	297,127	424,801	755,690
India	998,326	1,563,604	2,350,599	4,477,714	4,507,602
Mauritius	156,485	51,239	69,533	35,250	12
New Zealand	2,096,004	2,441,722	2,647,942	2,281,134	2,392,560
Papua	67,655	63,746	80,179	122,493	218,960
South African Union ..	5,626	50,232	137,911	1,555,896	669,653
Straits Settlements ..	234,001	270,550	625,079	1,005,167	1,363,905
Other British Possessions	49,334	168,318	298,640	524,342	1,117,563
Total British Possessions	4,766,160	5,950,239	8,569,639	14,070,762	16,294,792
Total British Countries	27,873,338	32,740,040	48,741,238	50,163,937	59,407,462
Foreign Countries—					
Belgium	428,305	815,228	1,724,846	110,404	170,588
Chile and Peru ..	32,956	22,611	47,818	214,546	266,345
China	249,940	70,887	83,628	216,558	301,826
France	504,558	455,301	545,071	190,665	340,280
Germany	2,521,486	3,112,697	4,329,681	279,940	3,065
Italy	157,502	197,464	343,894	358,580	399,407
Japan	290,835	460,514	804,346	4,302,953	4,262,000
Java	648,729	314,745	848,213	1,236,743	6,405,452
Netherlands	69,576	133,191	234,650	65,722	111,975
Norway	(b)425,664	312,357	599,801	683,405	755,810
Pacific Islands	149,889	167,666	230,838	437,624	258,702
Philippine Islands ..	84,660	79,056	113,156	161,537	202,476
Sweden	(b)	105,828	489,113	573,443	748,814
United States of America	5,342,307	5,124,191	7,643,641	16,720,033	23,768,030
Other Foreign Countries	553,542	232,183	432,463	898,848	1,572,040
Total Foreign Countries	11,449,949	11,604,118	18,471,159	26,451,001	39,566,830
Total ..	39,323,287	44,344,158	67,212,397	76,614,938	98,974,292

(a) In previous years included with Pacific Islands (Foreign). (b) Norway and Sweden combined for these years.

Expressing each item as percentage on the total of the imports, the following results are obtained :—

COMMONWEALTH IMPORTS.—PERCENTAGES OF IMPORTS FROM EACH COUNTRY ON THE TOTAL IMPORTS, 1899 TO 1919–20.

Country.	Yearly Average for Quinquennial Periods.				1919-20.
	1899–1903.	1904–8.	1909–13.	1914–5/1918–9.	
	per cent.	per cent.	per cent.	per cent.	per cent.
United Kingdom	58.76	60.41	59.77	47.11	43.56
British Possessions—					
Bismarck Archipelago ..	..	..	..	..	(a)0.66
Canada	0.73	0.66	1.28	2.30	2.67
Ceylon	1.22	1.53	1.21	1.70	1.69
Fiji	0.23	0.20	0.58	0.76	0.30
Hong Kong	0.76	0.63	0.44	0.55	0.76
India	2.54	3.53	3.50	5.85	4.55
Mauritius	0.40	0.12	0.10	0.05	0.00
New Zealand	5.33	5.51	3.94	2.98	2.42
Papua	0.17	0.14	0.12	0.16	0.22
South African Union ..	0.01	0.11	0.21	2.03	0.68
Straits Settlements	0.60	0.61	0.93	1.31	1.38
Other British Possessions ..	0.13	0.38	0.44	0.68	1.13
Total British Possessions..	12.12	13.42	12.75	18.37	16.46
Total British Countries ..	70.88	73.83	72.52	65.48	60.02
Foreign Countries—					
Belgium	1.09	1.84	2.57	0.14	0.17
Chile and Peru	0.08	0.05	0.07	0.28	0.27
China	0.64	0.16	0.12	0.28	0.31
France	1.28	1.02	0.81	0.25	0.34
Germany	6.41	7.02	6.44	0.37	0.00
Italy	0.40	0.45	0.52	0.47	0.40
Japan	0.74	1.04	1.20	5.62	4.31
Java	1.65	0.71	1.26	1.61	6.47
Netherlands	0.15	0.30	0.35	0.09	0.11
Norway	1.08(b)	0.70	0.89	0.89	0.76
Pacific Islands	0.38	0.38	0.34	0.57	0.26
Philippine Islands	0.22	0.18	0.17	0.21	0.21
Sweden	(b)	0.25	0.73	0.75	0.76
United States of America ..	13.59	11.55	11.37	21.82	24.02
Other Foreign Countries ..	1.41	0.52	0.64	1.17	1.59
Total Foreign Countries ..	29.12	26.17	27.48	34.52	39.98
Total	100	100	100	100	100

(a) In previous years included with Pacific Islands (Foreign). (b) Norway and Sweden combined for these years.

3. Imports from the United Kingdom.—The foregoing table shews broadly the effect on the export trade of the United Kingdom to this country of the concentration of British industry on the war, and it also shews the increased value of imports from the United States of America and from Japan. It must be pointed out, also, that the values given in the foregoing table for the year 1919–20 of the imports from the United States and from Japan, by reason of the conversion of the dollar and the yen at the par of exchange (see § 6, par. 1 of this chapter), are much below their actual commercial values in sterling. The value of the imports from the United States is probably understated by as much as 24 per cent. and that from Japan by 25 per cent. The

diversion of Australian trade from Great Britain is more fully dealt with in paragraph 13 of this section. The values of the principal imports of United Kingdom origin during the year 1919–20 are as follows :—

Ale and beer, £118,627 ; apparel and textiles—apparel—blouses, skirts, &c., £135,486, boots and shoes, £55,179, corsets, £122,984, gloves, £69,197, hats and caps, £71,671, shirts, collars, etc., £101,683, socks and stockings, £495,669, trimmings, £171,507, other apparel, £617,633, textiles—piece goods—canvas and duck, £949,703, cotton—grey, unbleached, £470,217, white, bleached, £1,902,547, dyed or printed n.e.i., £3,646,031, lace for attire, £400,851, linen n.e.i., £218,235, silk, £167,663, velvets, £136,722, woollens, £3,331,081, other piece goods, £750,134, sewing and embroidery silks, £660,062, other textiles, £1,152,162 ; arms, ammunition, and explosives, £544,169 ; bags, baskets, etc., £49,286 ; books and periodicals, £603,446 ; brushware, £85,191 ; cocoa and chocolate, £200,664 ; cordage, £171,715 ; drugs and chemicals—alkalis (soda), £279,159, cyanide of potassium, £52,112, dyes, £126,563, insecticides, etc., £64,636, medicines, £131,604, other drugs, etc., £703,355, earthenware, £273,707, electrical materials, £644,683 ; fancy goods, £194,107 ; fish, fresh and preserved, £248,340 ; glass, etc., £147,748 ; glue, gelatine, £21,501 ; indiarubber and manufactures, £308,875 ; instruments—musical, £54,345 ; surgical and dental, £94,190 ; jewellery and precious stones, £296,080 ; leather and manufactures, £151,074 ; machines and machinery—electrical, £371,559 ; machine tools, £262,761, motive power, £331,891, other, £1,041,033, metals, manufactures of—cutlery, £345,853, electrical and gas appliances, £327,993, iron and steel—pig iron, £19,818, bar, hoop, ingot, etc., £491,582, girders, beams, etc., £119,667, plate and sheet—corrugated, galvanized, £1,519,091, galvanized, not corrugated, £743,776, plain, not galvanized, £451,359, pipes and tubes, £854,013, rails, fishplates, etc., £36,094, tinned plates, plain, £1,548,064, tools of trade, £431,533, wire, £227,356, wire rope, hawsers, etc., £341,692, vehicles—bicycles, £143,929, motors, £330,470, other vehicles, £414,853, other metal manufactures, £2,064,320 ; mustard, £82,263 ; oils (not essential), £158,477, paints and varnishes, £282,263 ; paper, £435,652 ; photographic materials, £27,157 ; pickles, sauces, etc., £94,480 ; pipes, smoking, £124,720 ; soap, £52,369 ; spirits, £807,847 ; stationery, £260,649 ; tobacco, £101,435 ; wax matches, £39,092 ; yarns, £805,092.

4. Imports Shipped from British Possessions.—The growth of the value of imports from other British possessions during the past twenty years has been such as to increase the proportion to total imports from 12.12 per cent. in the years 1899–1903 to 16.46 per cent. in 1919–20, the actual values being respectively £4,766,160 in the earlier period and £16,294,792 in 1919–20. Of the total imports from British possessions during 1919–20, 14.68 per cent., or 2.41 per cent. of all imports, was from New Zealand ; 27.66 per cent., or 4.55 per cent. of all imports, from India ; 16.20 per cent., or 2.08 per cent. of all imports, from Canada ; and 10.28 per cent., or 1.69 per cent. of all imports, from Ceylon. The imports from Canada shew an increase of £1,481,550, or 127.85 per cent. over those of 1913, and an increase of £1,783,250, or 208.04 per cent., over the average of the period 1909–13. The relatively large imports from the South African Union during the five years ending with 1918–19 were due to a shipment of gold (£4,943,290) to Western Australia to be minted.

5. Principal Imports, the Produce of British Possessions, 1919–20.—These are as follows :—

(i) *Canada.* Apparel and textiles—corsets, £50,106, other, £90,207 ; boots and shoes, £75,087 ; carbide of calcium, £14,071 ; cutlery, £29,587 ; fish, £197,217 ; indiarubber and manufactures, £311,380 ; iron and steel—bar, rod, etc., £19,800 ; agricultural implements and machinery, £223,259 ; other machines and machinery, £38,044 ; metal manufactures, £76,177 ; musical instruments, £21,151 ; paints and varnishes, £6,894 ; paper—printing, £503,157 ; wrapping, £91,208 ; other paper, £46,707 ; pipes and tubes, wrought, £66,266 ; timber, £111,602 ; motor chassis, £447,562 ; other vehicles, £73,826 ; whisky, £3,982 ; wire, £30,331.

(ii) *Ceylon.* Cocoa and chocolate, £19,027 ; coir fibre, £11,217 ; nuts, £153,530 ; rubber and manufactures, £31,514 ; tea, £1,422,273.

For some years past the greater part of the tea imported into Australia was from Ceylon, but, during 1919–20, Java was the principal source of supply.

(iii) *Egypt.* Cigarettes, £3,954; fruits, dried, £1,177; gums and resins, £24,204 hides and skins, £14,821.

(iv) *Fiji.* Bananas, £64,220; copra, £1,194; fancy goods, £19,531; hides—cattle and horse, £11,730; sugar—produce of cane, £160,538; molasses, £17,124.

(v) *Hong Kong.* Ginger, £6,004; oils (in bulk), £3,561; tea, £6,843.

(vi) *India.* Bags and sacks, £1,924,147; hessians, £445,019; cameos, precious stones unset, £31,733; carpets, mats, etc., £25,459; coffee and chicory, £46,560; cordage and twine, £19,190; cotton, raw, £21,292; jute, £38,801; other unmanufactured fibres, £39,270; gums and resins, £48,336; grain—beans and peas, £25,995; linseed, £345,637; oils—castor, £8,864; linseed, £16,845; rice, £456,561; skins and hides, £294,805; spices £38,155; tea, £642,744; wax, paraffin, £166,348; yarns, £19,653.

(vii) *New Zealand.* Apparel and textiles, £13,117; animals—cattle, £13,203, horses *£20,723, sheep, £1,197; beans and peas, £26,974; coal, £25,605; flax and hemp fibre,* £164,266; fish, £34,823; gold bullion, matte, and ore, £37,138; implements and machinery (agricultural), £3,006; machines and machinery, £9,551; meats, £6,598; milk and cream, £31,281; oats, £41,758; seeds, £130,428; skins and hides, £467,445; timber, £673,943; twine, reaper and binder, £6,697; vegetables, £43,517.

(viii) *Papua.* Copra, £136,476; gold bullion, £17,904; fibres, flax and hemp £12,399; copper ore, £1,859; india-rubber, £34,154.

(ix) *South African Union.* Bark, tanning, £31,031; brandy, £457; coal, £18,988; explosives, £201,198; fibres, £40,624; hides and skins, £91,757; maize, £149,287; precious stones, £380,990.

(x) *Straits Settlements.* Bamboo, clouded, £10,142; pitch and tar, £11,572; precious stones, £7,926; rubber and rubber manufactures, £49,458; spices, £59,022; sago and tapioca, £102,090.

6. **Imports Shipped from Foreign Countries.**—The imports direct from foreign countries during the year 1919–20 represented 39.98 per cent. of the total imports, as compared with 29.12 per cent. during the years 1899–1903. Of the total imports into Australia shipped from foreign countries during 1919–20, 60.07 per cent.—24.02 per cent. of all imports—was from the United States, and 10.77 per cent.—4.31 per cent. of all imports—was from Japan, and 16.68 per cent—6.47 per cent of all imports was from Java. The large increase in the imports from Java was mainly due to heavy imports of sugar and tea. Further reference to the increased trade with the United States and Japan will be found hereinafter.

7. **Principal Imports the Produce of Foreign Countries, 1919–20.**—(i) *Austria.* Trade with Austria was suspended on the outbreak of war, and has not since been resumed.

(ii) *Belgium.* Apparel, £8,706; textiles, £45,610; arms, £7,347; cameos and precious stones, £49,843; drugs and chemicals, £640; glass and glassware, £117,040; paper, £1,849; wire—iron and steel, £24,137.

(iii) *Brazil.* Cocoa beans, £20,651; india-rubber, £67,637; nuts, £6,184; waxes, £6,598.

(iv) *Chile.* Soda nitrate, £84,390; sulphur—brimstone, £7,296.

(v) *China.* Alcoholic liquors, £15,600; apparel and textiles, £345,643; bamboo, cane, etc., £13,789; cotton, raw, £21,303; drugs and chemicals, £37,411; fireworks, £14,371; fish, £22,721; fruit, £12,674; ginger, £38,258; grass straw for hats, £58,608; rice, £190,510; nuts, £59,833; oils, £56,668; tea, £07,242; tobacco, £13,918.

(vi) *Denmark.* Ale, beer, and spirits, £2,946. Rennet, £7,838; whiting, £3,007.

(vii) *France.* Apparel and textiles, £1,315,034; cream of tartar, £156,807; tartaric acid, £1,831; other drugs and chemicals, £81,050; fancy goods, £41,154; fertilizers, £72,403; jewellery, £41,870; liquorice, £5,116; musical instruments, £9,742; oils, essential, £13,486; olive oil, £42,729; pipes, smoking, etc., £96,917; paper and stationery, £70,760; perfumery, £25,838; perfumed spirits and bay rum, £26,103; rubber tyres, £72,819; leather, £1,013; machinery and manufactures of metal, £34,029; seeds, £4,919; spirits, £95,449; wine, £123,749.

(viii) *Germany.* Trade with Germany was suspended on the outbreak of war, and has not since been fully resumed. Goods can be imported from Germany only under permits granted by the Minister for Trade and Customs.

(ix) *Italy.* Apparel and textiles—buttons, buckles, etc., £22,635, gloves, £25,696, hats and caps, £30,433, piece goods—silk, £60,004, other £5,655, other apparel and textiles, £10,337; *chassis for motor cars*, £42,649; *flax and hemp*, £27,068; *liquorice*, £15,249; marble and stone, £55,049; oils—essential, £36,463; olive oil, £23,140; nuts, £38,422; rubber tyres, £2,462; cream of tartar, £36,000; tartaric acid, £45,446; wines, £3,979.

(x) *Japan.* Apparel—hats and caps, £31,131, gloves, £7,065, socks and stockings, £79,082, shirts, collars, £40,183, other, £164,801, textiles—carpets, matting, £51,410, piece goods—canvas and duck, £64,884, cotton and linen, £522,040, silk, £1,444,058, quilts, etc., £23,625, other textiles, £139,474; bags, baskets, etc., £18,656; brushware, £56,828; cable and wire, covered, £51,065; carbide of calcium, £9,218; chinaware, £132,104; earthenware, £21,405; fancy goods, £113,250; fibres—cotton waste, £20,019; fish, £2,298; furniture, £4,073; glass and glassware, £173,298; grass straw for hats, £72,498, isinglass, £11,244; linseed, £27,599; ores and metal manufactures—electrical appliances; £23,885, enamelled ware, £4,826, wire rope, hawsers, £8,325, other, £107,517; matches, £46,779; nuts, £19,367; oils and waxes, £68,583; paper, £57,844; seeds, £14,597; stationery, £27,595; rice, £772; spices, £15,509; sulphate of copper, £913; sulphur, £52,083; tea, £16,663; wood and wicker, etc., £224,064; yarns, £676; vegetables, £33,717.

Further reference is made on a later page to the imports from Japan.

(xi) *Netherlands.* Cocoa and chocolate, £22,585; cameos and precious stones, £21,630; drugs and chemicals, £7,083; electrical appliances, £28,882; paper, £7,158; spirits, £77,597.

(xii) *Netherlands East Indies.* Bananas, £11,770; coffee and chicory, £81,249; drugs and chemicals, £22,742; fibres—kapok, £315,234, other, £15,254; hides, cattle, £60,015; nuts, £14,576; oils—kerosene, £153,226, lubricating mineral, £14,727, petroleum spirit, £1,517,155, residual oil, £121,950, other oils, £43,795, waxes, £39,991; rubber, crude, £30,533; sago and tapioca, £61,495; seeds, £31,539; tobacco, £41,422; tea, £1,548,628; *sugar*, £4,024,407; *spices, unground*, £78,268.

(xiii) *New Caledonia.* Copra, £2,652; fancy goods, £8,532; maize, £1,356; meats, preserved in tins, £5,626; manganese ore, £11,848; skins, £45,760; tallow, £18,513; timber, £5,194.

(xiv) *Norway.* Drugs and Chemicals, £88,380; meats, £268,530; machinery and manufactures of metals, £5,596; matches, £2,565; paper, £239,562; timber, £202,437; wood pulp, £14,543.

(xv) *Peru.* Rubber, crude, £3,010; sugar, £174,078.

(xvi) *Philippine Islands.* Flax and hemp, £150,904; cigars, £35,997; tobacco, unmanufactured, £9,576.

(xvii) *Russia.* Drugs and chemicals, £1,717; furs, £4,021; paper, £1,644.

(xviii) *Spain.* Corks, etc., £62,383; nuts, £11,738; olive oil, £62,443; quicksilver, £4,591; wine, £10,001.

(xix) *Sweden.* Calcium carbide, £23,727; cream separators, £63,339; other machines and machinery, £49,312; horseshoe nails, £3,128; primus stoves, £5,780; manufactures of metals, £13,880; matches and vestas, £40,592; timber, £90,348; paper, £437,310; wood manufactures, £9,418; wood pulp, £35,488; rennet, £745.

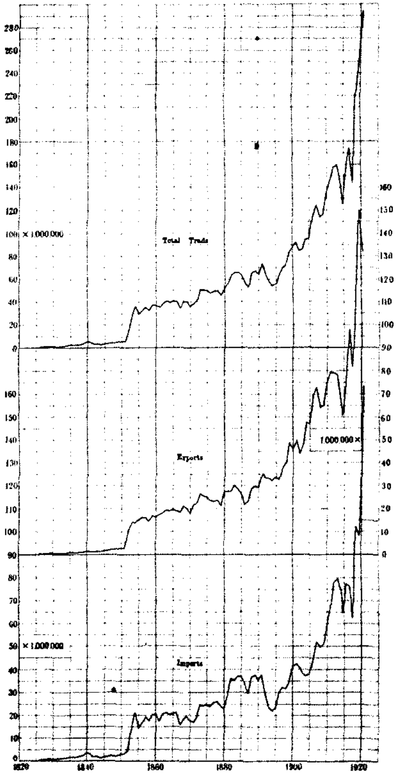
(xx) *Switzerland.* Apparel and textiles—trimmings, £168,813, piece goods—silk, £259,536, lace for attire, £72,708, other, £127,786; drugs and chemicals, £20,083; electrical articles, £24,224; grass straw for hats, £22,435; machinery and metal manufactures, £79,836; surgical instruments, £2,108; talking machines, £5,116; watches, £164,890.

(xxi) *United States of America.* Apparel—boots, shoes, etc., £83,338, corsets, £134,455, furs, dressed, £34,623, gloves, £150,618, hats and caps, £80,747, hosiery and knitted articles, £92,533, shirts, collars, etc., £49,646, socks and stockings, £669,569; trimmings, £57,837, other apparel, £174,522; textiles—floor coverings, £68,418, piece goods—canvas and duck, £259,621, cotton and linen, £621,338, other, £249,370, sewing silks, £148,898, other textiles, £30,681; arms, £99,530; ammunition and explosives, £231,315; bags, baskets, etc., £50,388; brushware, £39,694; cameras, £79,786; caramel, £27,472; clocks and watches, £125,252; cocoa and chocolate, £8,554; drugs and chemicals—cream of tartar, £52,058, drugs and medicinal preparations, £99,161, dyes, £11,983, medicines, £144,826, other, £401,061; electrical materials—accumulators, £81,022, arc lamps and carbons, £51,207, cable and wire, covered, £33,985; fancy goods, £76,915; fish, £283,889; fruit, £100,442; furniture, £37,133; glass and glassware, £193,176; india-rubber manufactures, £519,300; jewellery and precious stones, £36,832; kinematograph films, £211,544; leather, £546,566; meats, £126,838; machines and machinery—agricultural, £155,896, engines, £194,368, electrical, £463,215, machine tools, £178,131, sewing, £178,527, typewriters, £93.104, other, £1,027,074; metals and manufactures—bolts, nuts, £78,093, copper, plate and sheet, etc., £20,694, cutlery, £50,318, iron and steel—bars, ingots, hoops, etc., £219,916, girders, beams, £80,865, plate and sheet—corrugated, galvanized, £223,338, galvanized, not corrugated, £147,873, plain, not galvanized, £255,465, lampware, £101,980, nails, £84,588, pipes and tubes, £257,007, telephones, £59,296, tools of trade, £403,634, wire, £516,489, other, £1,051,477; musical instruments, £329,641; oils, fats, and waxes—benzine and gasoline, £819,302, kerosene, £638,308, lubricating oils and greases, £312,547, waxes, £45,986, turpentine, £182,031; paints and varnishes, £150,682; paper—printing, £303,624, wrapping, £96,424, writing and typewriting, £217,467, other, £333,613; perfumery, £136,520; resin, £194,983; soap, £62,286; soda—carbonate, £18,739, caustic, £12,583, stationery, £336,810; surgical and dental instruments, £108,452; talking machines, £134,413; timber, £1,129,510; tobacco, cigars, etc., £2,459,191; vehicles—motors and parts, £2,078,929, other vehicles and parts, £401,632; wood and wicker manufactures, £168,373.

The imports from America are again referred to on a later page.

8. Direction of Exports.—The following tables shew that, prior to the war, a constantly decreasing proportion of Australian exports was being consigned to the United Kingdom. This was not entirely due to the relatively smaller purchases of Australian produce by the United Kingdom, but was in some measure the effect of an increasing tendency towards direct shipment of wool, skins, etc., to the consuming countries—notably to Belgium, France, and Germany—instead of distributing the trade through London as formerly. The figures given below, however, do not, even for the later pre-war years, denote the total purchases by European countries of Australian produce, as large quantities were still distributed from London. The reservation to the United Kingdom of the first call on our primary products increased the proportion

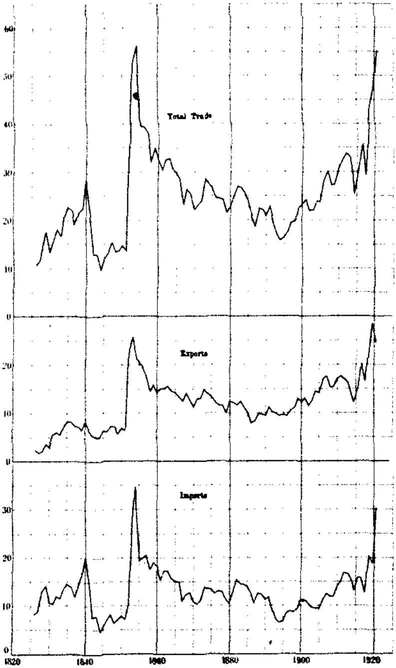
GRAPHS SHEWING VALUES OF TOTAL TRADE, EXPORTS, AND IMPORTS OF COMMONWEALTH, 1826 TO 1919-20.



(See pages 492 and 493.)

EXPLANATION OF GRAPHS.—The base of each square represents an interval of five years, and the [ve]rtical height five million pounds sterling for Imports and Exports, and ten million pounds sterling for [To]tal Trade.

GRAPHS SHEWING THE VALUES PER HEAD OF POPULATION OF TOTAL TRADE, EXPORTS AND IMPORTS OF COMMONWEALTH, 1826 TO 1919-20.



(See pages 492 and 493.)

Explanation of Graphs.—The base of each square represents an interval of five years, and the vertical height five pounds per head of the population.

of our exports which was shipped to that country during the war period, and, to a greater extent, the proportion shipped to other parts of the Empire, notably to Egypt and to India.

TRADE OF THE COMMONWEALTH WITH VARIOUS COUNTRIES, 1899 TO 1919-20.

EXPORTS (INCLUDING BULLION AND SPECIE).

Country.	Yearly Average for Quinquennial Periods.				Year 1919-20.
	1899-1903.	1904-8.	1909-13.	1914-5/1918-9.	
	£	£	£	£	£
United Kingdom ..	23,432,513	30,114,565	34,028,258	45,839,346	80,784,096
British Possessions—					
Canada	67,776	201,832	125,942	1,835,850	312,452
Ceylon	2,223,487	4,050,826	3,194,757	330,221	354,810
Egypt	..	..	..	a3,019,571	2,769,331
Fiji	205,731	284,636	402,877	442,794	664,634
Hong Kong	403,776	747,025	741,365	654,371	2,599,757
India	2,348,420	2,828,280	2,231,306	4,492,414	2,439,935
Mauritius	40,425	46,378	32,424	16,650	102,944
New Zealand	1,432,227	2,060,900	2,385,078	3,525,124	7,743,744
Papua	48,720	50,174	120,401	165,559	308,159
South African Union ..	4,276,976	2,065,014	1,799,435	1,995,940	3,044,351
Straits Settlements ..	105,824	391,409	834,156	853,765	6,216,398
Other British Possessions	41,941	70,843	75,913	331,435	1,293,421
Total British Possessions	11,195,303	12,797,317	11,943,654	17,663,694	27,849,936
Total British Countries	34,627,816	42,911,882	45,971,912	63,503,040	108,634,032
Foreign Countries—					
Argentine Republic ..	25,398	40,094	126,142	22,491	5,582
Belgium	1,667,396	3,930,612	6,172,958	182,053	4,263,608
Chile and Peru	299,097	624,168	616,704	241,512	181,928
China	237,376	340,726	161,527	180,913	543,365
France	2,754,889	5,686,867	8,183,825	2,159,912	6,671,878
Germany	2,549,266	5,140,556	6,938,358	96,001	16,520
Italy	159,017	207,218	525,903	2,321,900	3,771,544
Japan	198,434	869,350	1,194,271	3,262,745	7,229,501
Java	153,439	209,310	480,984	985,472	2,619,995
Netherlands	107,914	299,231	298,879	8,274	11,005
Norway	b61,192	4,624	2,039	163,702	500,208
Pacific Islands	789,966	442,050	631,465	778,687	724,666
Philippine Islands ..	229,414	463,283	525,443	453,967	1,061,463
Spain	15,383	59,264	23,540	91,232	866
Sweden	b	4,219	4,888	146,595	256,702
United States of America	3,270,940	2,483,637	2,067,313	9,607,368	11,129,937
Other Foreign Countries ..	194,127	522,911	1,456,269	1,338,051	2,200,709
Total Foreign Countries	12,653,248	21,328,120	29,410,508	22,240,875	41,189,477
Total	47,281,064	64,240,002	75,382,420	85,743,915	149,823,509

(a) In previous years included with "Other Foreign Countries." (b) Norway and Sweden combined for these years.

If each item be expressed as a percentage on the total export, the results will be as follows :—

COMMONWEALTH EXPORTS.—PERCENTAGES OF THE EXPORTS TO EACH *COUNTRY ON THE TOTAL EXPORTS, 1899 TO 1919–20.*

Country.	Yearly Average for Quinquennial Periods.				1919–20.
	1899–1903.	1904–8.	1909–13.	1914–5–1918–9.	
	per cent.	per cent.	per cent.	per cent.	per cent.
United Kingdom ..	49.56	46.88	45.14	53.46	53.92
British Possessions—					
Canada	0.14	0.31	0.17	2.14	0.21
Ceylon	6.70	6.32	4.24	0.38	0.24
Egypt	..	..	..	(a)3.52	1.85
Fiji	0.44	0.44	0.53	0.52	0.44
Hong Kong	0.85	1.16	0.98	0.76	1.74
India	4.97	4.40	2.96	5.24	1.63
Mauritius	0.09	0.07	0.04	0.02	0.07
New Zealand	3.03	3.21	3.16	4.11	5.17
Papua	0.10	0.08	0.16	0.19	0.21
South African Union ..	9.05	3.21	2.39	2.33	2.02
Straits Settlements ..	0.22	0.61	1.11	1.00	4.15
Other British Possessions	0.09	0.11	0.10	0.39	0.86
Total British Possessions	23.68	19.92	15.84	20.60	18.59
Total British Countries	73.24	66.80	60.98	74.06	72.51
Foreign Countries—					
Argentine Republic ..	0.05	0.06	0.17	0.03	0.00
Belgium	3.53	6.12	8.19	0.21	2.85
Chile and Peru.. ..	0.63	0.97	0.82	0.28	0.12
China..	0.50	0.53	0.20	0.21	0.36
France	5.83	8.85	10.86	2.52	4.45
Germany	5.39	8.00	9.21	0.11	0.01
Italy	0.34	0.32	0.70	2.70	2.52
Japan	0.42	1.35	1.58	3.81	4.83
Java	0.32	0.33	0.64	1.15	1.75
Netherlands	0.23	0.47	0.40	0.01	0.01
Norway	0.00(b)	0.01	0.00	0.19	0.33
Pacific Islands	1.67	0.69	0.84	0.91	0.48
Philippine Islands ..	0.49	0.72	0.70	0.53	0.71
Spain	0.03	0.09	0.03	0.11	0.00
Sweden	(b)	0.01	0.01	0.17	0.17
United States of America	6.92	3.87	2.74	11.44	7.43
Other Foreign Countries..	0.41	0.81	1.93	1.56	1.47
Total Foreign Countries	26.76	33.20	39.02	25.94	27.49
Total	100	100	100	100	100

(a) See note to preceding table. (b) Norway and Sweden combined for these years.

9. Exports to the United Kingdom.—The principal exports to the United Kingdom during the year 1919–20 were as follows :—Apparel and textiles, £103,475 ; butter, £2,120,691 ; cheese, £254,014 ; coconut oil, £105,233 ; copra, £470,999 ; eucalyptus oil, £37,023 ; other drugs, £36,636 ; fibres—rags, £42,897 ; fruits—apples, £395,075, dried, £149,093, preserved in liquid, £361,353 ; gold specie, £2,297 ; grain and pulse—beans and peas, £70,489, wheat, £13,321,763, flour, £858,575 ; hair, £47,695 ; honey, £6,642 ; jams and jellies, £452,074 ; jewellery and precious stones, £134,488 ; lard, etc., £218,714 ; leather, £1,329,931 ; meat—frozen beef, £2,130,527, mutton, £3,668,624, lamb, 1,623,716 ; rabbits and hares, £756,298, other frozen meat, £269,919, potted meat, £163,937, meat,

preserved in tins, £2,571,574 ; milk, £222,780 ; minerals and metals—copper—ingots, £2,030,984, lead—pig, £2,033,695, tin—ingots, £286,544, zinc—concentrates, £68,790, bars, blocks, etc., £95,145, antimony, £80,383, molybdenite, £60,269, scheelite, £39,783, wolfram, £114,523 ; pearl shell, £196,693 ; silver, £347,501 ; skins—cattle, hides, £396,767, rabbit and hare, £764,303, sheep, £2,055,612, other skins, £556,694 ; spirits, £77,232 ; stearine, £45,019 ; tallow, £949,403 ; vessels, £432,500 ; wine, £104,498 ; wool—greasy, £28,337,060, scoured, £7,463,005, tops, £1,456,250.

10. **Principal Exports to British Possessions, 1919-20.**—(i) *Canada.* Coconut oil, £14,138 ; dried fruits, £40,022 ; hides and skins—rabbit and hare, £6,848, other, £118,253 ; jams and jellies, £6,162 ; meats—sausage casings, £9,644, other, £11,367 ; tin—ingots, £9,344 ; wool, £63,520 ; tallow, £2,025.

(ii) *Ceylon.* Butter, £31,866 ; flour, £165,555 ; lard, £4,632, meats, £42,171 ; milk, £19.277 ; cameos and precious stones, £7,033 ; timber, £10,448 ; wheat, £12,783.

(iii) *Egypt.* Apparel and attire, £30,212 ; biscuits, £2,120 ; butter, £3,341 ; flour, £1,539,224 ; fruits preserved in liquid, £8,494 ; jams and jellies, £193,715 ; leather, £45,002 ; meats—frozen—beef, £133,583, preserved in tins, £9,240, other, £8,440 ; milk, £1,921 ; tallow, £3,351 ; timber—undressed, £14,472 ; wheat, £684,160.

(iv) *Fiji.* Apparel and textiles—apparel, £40,752, textiles, £65,319, bags, sacks, and cordage, £28,244 ; beverages, £26,352 ; biscuits £42,814 ; coal, £33,929 ; drugs and chemicals—fertilizers, £37,260, other, £11,561 ; grain, prepared—bran and pollard, £48,537, flour, £43,823, rice, £2,531 ; machines and machinery, £26,361 ; metal manufactures, £36,987 ; meat, preserved in tins, £1,563 ; oils, fats, and waxes, £12,319 ; silver specie, £3,800 ; spirits and alcoholic liquors, £38,993 ; soap, £4,766 ; timber, undressed, £11,236 ; tobacco, £21,330 ; vehicles, £3,967.

(v) *Hong Kong.* Biscuits, £5,106 ; butter, £66,197 ; precious stones, £11,012 ; fish, £71,305 ; flour, £591,734 ; gold specie, £1,153,118 ; lead, pig, £120,427 ; leather, £55,623 ; meats, £49,966 ; milk and cream, £61,190 ; sandalwood, £174,059 ; soap, £15,694 ; silver, £39,715 ; vessels, £120,000.

(vi) *India.* Biscuits, £18,603 ; boots and shoes, £9,884 ; precious stones, £12,643 ; cheese, £21,028 ; coal, £12,270 ; copper ingots, £276,840 ; fruits preserved in liquid, £2,578 ; gold, £708,658, silver, £514,202 ; horses, £84,651 ; hay and chaff, £7,084 ; grain and pulse—wheat, £281,119 ; oatmeal, £9,797, flour, £9,007 ; jams and jellies, £37,431 ; leather, £28,742 ; meats, £31,358 ; milk, £63,408 ; tallow, £165,657.

(vii) *New Zealand.* Apparel and textiles, etc.—boots and shoes, £583,713, other apparel, £365,098, textiles, £411,592, bags, baskets, £44,475 ; bags and sacks, £62,106 ; cordage, £15,880 ; arms, ammunition, etc., £36,026 ; bark, tanning, £37,616 ; biscuits, £11,708 ; books and periodicals, £66,003 ; cameras, kinematographs and films, talking machines, etc., £2,535 ; photographic goods, £50,029 ; coal, £392,718 ; confectionery, £109,572 ; drugs and chemicals—fertilizers, £153,501, medicines, £99,116, other drugs, etc., £170,150 ; egg albumen, £17,798 ; electrical materials, £21,229 ; fibres, £22,050 ; fodders, £2,640 ; fruit—fresh, £33,303, dried, £331,405 ; preserved in liquid, £114,938 ; furniture, £12,929 ; glass and glassware, £64,651 ; grain—barley, £68,224 ; flour, £3,543, oats, £17,865, rice, £57,544, wheat, £681,233 ; hides and skins, £6,850 ; horses, £35,725 ; india-rubber manufactures, £250,312 ; iron, bar, £70,029 ; jewellery, £70,055 ; cameos and precious stones, £41,229 ; lead, pig, £27,266 ; leather and leather manufactures, £278,751 ; matches, £9,366 ; agricultural implements and machinery, £17,311 ; other machines and machinery, £188,696 ; other manufactures of metals, £364,743 ; motor vehicles and parts, £12,788 ; milk, £41,538 ; oils, etc., £194,194 ; onions, £12,692 ; paints, varnishes, £192,963 ; plants, trees and bulbs, £4,517 ; paper, £57,878 ; peel, £18,626 ; salt, £36,924 ; seeds, £43,697 ; soap, £75,907 ; specie, silver, £2,100 ; spirits, £91,474 ; stationery, £33,142 ; sugar, £28,503 ; tea, £348,136 ; timber, £178,982 ; tin, ingots, £77,112 ; tobacco, £237,169 ; wine, £68,934 ; wood and wicker articles, £29,171.

(viii) *Papua.* Ale and beer, £6,775 ; apparel and textiles, £22,787 ; beans and peas, £13,172 ; biscuits, £9,157 ; butter, £2,790 ; coal, £4,309 ; fish, £6,506 ; flour, £13,458 ; machinery and manufactures of metal, £51,362 ; meats, £16,616 ; oils, etc., £15,044 ; rice, £5,444 ; sugar, £6,452 ; timber, £5,662 ; tobacco, £31,894.

(ix) *South African Union.*—Animals—sheep, breeding, £40,014 ; butter, £38,411 ; cheese, £47,517 ; boots and shoes, £107,673 ; copper—bars and ingots, £1,266 ; cordage and twine, reaper and binder, £20,709 ; other, £45,743 ; drugs and chemicals—eucalyptus

oil, £3,257, glycerine, etc., £1,720, other, £7,901; fruits—dried, currants, £47,352; raisins, £26,760; grain—wheat, £485,811, flour, £713,011; hops, £1,705; infants' food, £24,597; jams and jellies, £67,756; lard, £54,493; leather, £170,276; machinery and manufactures of metal, £22,948; meats, preserved, in tins, £39,407; milk and cream, £266,854; pickles and sauces, £3,444; rails, fishplates, etc., £67,646; seeds, £4,326; soap, £19,497; tallow, unrefined, £175,781; timber, £234,657.

(x) *Straits Settlements.* Biscuits, £33,135; butter, £162,044; cheese, £12,953; coal, £98,368; gold, specie, £3,433,586; grain, flour, £1,319,493; iron and steel, bar, etc., £3,695; jams and jellies, £43,902; leather, £45,497; living animals, £3,3501; machines and machinery—mining, £24,880, other, £19,759; meats, £186,331; milk and cream, £478,420; rails, fishplates, £60,404; sandalwood, £71,522; soap, £21,773.

11. **Principal Exports to Foreign Countries, 1919-20.**—These are as follows:—

(i) *Argentine Republic.* Agricultural implements and machinery, £3,374; seeds, £996.

(ii) *Bismarck Archipelago.* Ale, beer, £34,568; apparel, £17,108; biscuits, £11,615; textiles, £60,322; fibres, £5,895; fish, £24,847; machinery and manufactures of metals, £60,241; meats, £29,882; oils, £31,391; rice, £15,597; silver, specie, £34,920; tobacco, £53,651.

(iii) *China.* Butter, £89,217; copper ingots, £50,981; flour, £20,183; jams and jellies, £11,341; lead—pig, £30,698; leather, £29,940; meats, £14,972; sandalwood, £18,307; stearine, £25,977; silver, bar, ingot, etc., £136,515; tin, ingots, £28,105.

(iv) *Dutch East Indies, Java.* Apparel, textiles, etc., £47,330; butter, £469,670; biscuits, £68,691; coal, £73,303; coke, £6,253; confectionery, £5,767; grain, etc., barley, £3,445; flour, £581,274; oats, £50,572, other, £69,187; fertilizers, £155,650; fruits, fresh, £12,083; gold, specie, £245,118; lard, £7,542; horses, £14,264; jams and jellies, £12,162; leather and manufactures, £191,502; milk and cream, £186,337; machinery, mining, £4,403, other, £18,154; metal manufactures,—bolts, nuts, etc., £4,620; iron—bar and ingots, £65,012, nails, £7,097, rails, fishplates, £20,137, vehicles, £9,099, other, £45,179; meats, £64,334; wine, £6,625.

(v) *Other East Indies.* Biscuits, £27,323; butter, £94,302; flour, £221,396; machines and metal manufactures, £31,069; meats, £10,491; milk and cream, £11,460; soap, £33,435; stearine, £4,300.

(vi) *France.* Precious stones, £87,126; copra, £4,020; flour, £445,553; fruits, preserved in liquid, £7,202; jams and jellies, £82,994; leather, £36,903; ores, £54,144; tallow, unrefined, £2,792; wheat, £3,532,235; wool, £2,352,749.

(vii) *Italy.* Hides and skins, £57,903; tallow, £412,773; milk and cream, £53,977; tallow, wheat, £378,984; wool, £2,832,951.

(viii) *Japan.* Bones, £32,988; butter, £55,126; concentrates, zinc, £37,310; copper ingots, £390,372; hoofs, £15,165; glue pieces and sinews, £13,073; grain—barley, £25,156, flour, £464,922, wheat, £1,924,723; other, £81,343; hair, £15,413; hides and skins, cattle, £22,471, rabbit and hare, £56,462, fur, hatters', £31,797, other skins, £3,893; lead, pig, £428,796; leather, £2,953; manures, £153,892; milk and cream, £75,178; oils, £8,397; pearl shell, £4,576; trochus shell, £204,963; tin—ingots, £19,436; pig iron, £147,538; rags, £18,177; tallow, £623,106; wool, £2,010,732.

(ix) *New Caledonia.* Apparel, £26,925; textiles, £26,377; coal, £26,118; coke, £39,622; flour, £78,890; leather, £8,700; machinery and manufactures of metal, £41,225; oils, greases, etc., £16,331; potatoes, £8,234; rice, £4,425; sugar, £35,475; wine, £14,440; tobacco, £19,391.

(x) *Peru.* Coal, £14,938; wheat, £45,514.

(xi) *Philippine Islands.* Biscuits, £1,032; butter, £91,040; coal, £56,743; flour, £683,698; fodder, £12,601; jams and jellies, £7,983; leather, £15,293; meats—bacon and hams, £32,071, beef, £55,331, other meats, £23,797; vessels, £17,000.

(xii) *United States of America.* Copra, £71,695; hair, £9,260; hides, £1,077,790; jams and jellies, £208,338; leather, £95,630; sausage casings, £299,236; oils—coconut, £7,089, eucalyptus, £29,838; pearlshell, £265,353; skins—rabbit and hare, £2,777,774, opossum, £1,068,702, other, £1,460,210; tallow, £106,247; timber, £6,588; tin—ingots, £534,975; vessels, £123,378; wheat, £24,554; wool, £2,516,142.

§ 8. Development of Export Trade to Eastern Countries.

1. **Trade with Eastern Countries.**—The following tables shew the expansion in the value of exports from the Commonwealth to eastern countries since the inception of the Commonwealth in 1901. The principal countries concerned in this trade are China, India, Ceylon, Japan, East Indies, Philippine Islands, Straits Settlements, and Hong Kong, and the particulars given in the tables apply to these countries only :—

VALUE OF PRINCIPAL ITEMS OF MERCHANDISE EXPORTED FROM THE COMMONWEALTH TO EASTERN COUNTRIES, 1901-1920.

Article.	1901.	1909–1913.*	1914–15–1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
Antimony	..	100	5,665	1,884	1,313	1,099
Biscuits	5,960	20,611	118,949	248,822	208,495	165,584
Butter	64,838	200,107	370,979	420,551	659,743	1,006,694
Cheese	4,662	2,229	29,224	48,016	41,706	61,862
Coal	155,120	275,480	108,264	41,496	85,702	247,147
Concentrates—						
Silver and silver-lead	..	..	22,679	..	..	..
Zinc	..	180	200,201	236,465	158,557	37,310
Copper	39,375	54,094	302,967	595,877	280,598	729,041
Grain and Pulse—						
Wheat	46,685	74,181	460,176	258,641	1,997,200	2,359,191
Flour	135,092	600,065	823,681	1,286,979	1,811,476	4,057,560
Other (prepared and unprepared)	4,806	18,216	90,237	122,846	289,854	210,079
Hay, chaff, and compressed fodder	13,081	41,871	29,657	23,281	19,542	36,190
Horses	101,866	177,774	326,824	481,370	176,239	121,857
Iron and steel (unmanufactured)	74	2,111	82,391	86,771	314,776	301,612
Jams and jellies	5,708	6,620	163,932	452,919	155,377	128,688
Lead, Pig	10,454	308,492	544,817	560,100	681,473	580,724
Leather	13,197	41,757	130,847	144,950	229,695	346,510
Meats	194,071	273,962	850,168	1,483,663	1,581,192	526,277
Milk and cream	5,627	12,327	283,492	422,316	697,311	901,343
Pearl shell and trochus shell	20,440	410	39,634	53,863	70,007	209,657
Sandalwood	77,237	59,473	98,071	99,943	138,468	266,945
Skins, hoofs, horns, bones, sinews, tallow	16,419	79,023	220,916	235,320	464,544	947,271
Sulphate of ammonia	..	19,780	146,425	194,921	325,793	204,759
Tin ore	4,096	298,723	134,038	28,385	..	..
Timber, undressed	79,915	319,924	30,541	12,317	5,258	29,834
Wool	56,618	539,003	2,011,103	1,862,869	1,481,315	2,014,820
Other merchandise	170,872	346,635	998,566	1,162,032	2,235,562	1,755,816
Total merchandise	1,226,213	3,783,048	8,633,446	10,566,547	14,111,385	17,337,870
Specie and gold and silver bullion	3,339,953	5,665,514	2,739,969	5,064,507	4,854,609	6,232,767
Total exports	4,566,166	9,448,562	11,373,415	15,631,054	18,965,994	23,570,637

The following tables shew the value of the principal articles exported to each of the undermentioned Eastern countries during the year 1901 and from 1909 to 1919–20 :—

VALUE OF COMMONWEALTH EXPORTS OF MERCHANDISE TO PRINCIPAL EASTERN COUNTRIES, 1901-1920.

Country.	1901.	1909–1913.*	1914–15–1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	33,906	131,318	177,433	225,828	313,908	406,850
East Indies	204,315	552,935	1,143,488	1,203,472	2,645,840	2,878,615
Hong Kong	31,853	737,595	401,463	391,525	685,256	1,406,924
India and Ceylon	417,291	904,270	2,379,594	3,696,023	4,452,771	1,571,885
Japan	123,355	525,443	3,233,735	3,340,064	3,846,901	7,229,424
Philippine Islands	302,066	688,278	453,968	826,722	853,653	1,061,360
Straits Settlements	113,407	243,209	843,765	882,913	1,518,056	2,782,812
Total	1,226,213	3,783,048	8,633,446	10,566,547	14,111,385	17,337,870

* Annual average for the quinquennial period.

BUTTER.

Country.	1901.	1909–1913.*	1914–15–1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	1,987	23,175	43,174	77,743	56,271	89,217
East Indies	12,172	75,813	218,508	196,594	424,458	564,585
Hong Kong	8,555	22,010	23,674	33,298	28,618	66,197
India and Ceylon ..	9,696	10,353	10,136	7,526	10,168	38,485
Japan	1,504	5,680	1,758	691	1,170	55,126
Philippine Islands ..	21,061	34,581	23,596	26,504	48,658	91,040
Straits Settlements ..	9,863	28,495	50,133	78,195	90,400	162,044
Total ..	64,838	200,107	370,979	420,551	659,743	1,066,694

The exports of butter given above for the year 1919–20 were shipped from the several States as follows:—New South Wales, £242,700; Victoria, £766,905; Queensland, £49,022; Western Australia, £8,067.

COAL.

Country.	1901.	1909–1913.*	1914–15–1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	..	2,573	..	..	..	..
East Indies	43,280	80,119	39,440	8,133	31,533	73,303
Hong Kong	7,653	4,684	1,343	..	6,079	2
India and Ceylon ..	17,639	37,120	26,810	16,043	14,438	15,258
Japan	1	12	..	..	..	3,473
Philippine Islands ..	59,936	78,130	14,318	8,725	8,568	56,743
Straits Settlements ..	26,611	72,842	26,352	8,595	25,174	98,368
Total ..	155,120	275,480	108,263	41,496	85,792	247,147

These exports of coal are chiefly from New South Wales.

COPPER.

Country.	1901.	1909–1913.*	1914–15–1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	..	19,260	675	..	1,876	59,981
East Indies	..	64	..	..	..	1,848
Hong Kong	..	5,796	2,959	..	..	..
India and Ceylon ..	39,375	26,512	298,027	595,877	270,695	276,840
Japan	..	2,378	1,606	..	8,027	390,372
Philippine Islands ..	..	106	..	..	..	..
Straits Settlements ..	..	878	..	..	..	..
Total ..	39,375	54,994	302,967	595,877	280,598	729,041

The copper exported to the East during 1919–20 was shipped from New South Wales, £553,702; and South Australia, £175,339.

* Annual average for the quinquennial period.

GRAIN AND PULSE.—WHEAT.

Country.	1901.	1909–1913.*	1914–15–1918–19*.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	..	6	..	..	..	..
East Indies	9	18	15	..	48	57,716
Hong Hong	..	3	..	..	..	6
India and Ceylon ..	35,660	4,687	325,755	54,500	1,573,608	402,662
Japan	11,016	62,683	133,820	204,141	422,028	1,924,723
Philippine Islands ..	..	6,776	24	19	71	..
Straits Settlements ..	..	8	566	..	1,544	4,084
Total ..	46,685	74,181	460,180	258,660	1,997,299	2,389,191

The exports of wheat given for the year 1919–20 were shipped from the following States :—New South Wales, £562,434 ; Victoria, £1,228,599 ; South Australia, £520,487 ; and Western Australia, £77,671.

GRAIN AND PULSE.—FLOUR.

Country.	1901.	1909–1913.*	1914–15–1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	1,147	11,416	8,507	14,812	13,873	20,183
East Indies	82,566	275,516	265,084	299,398	508,071	802,968
Hong Kong	4,489	22,793	60,591	49,567	226,971	591,734
India and Ceylon ..	22,275	34,367	56,761	11	256,337	174,562
Japan	7,206	4,387	14,043	47,109	18,743	464,922
Philippine Islands ..	4,046	124,960	227,201	518,650	412,642	683,698
Straits Settlements ..	13,363	135,626	191,496	357,443	374,839	1,319,493
Total ..	135,092	609,065	823,683	1,286,990	1,811,476	4,057,560

The flour exported during 1919–20, as above, was shipped from the several States as follows :—New South Wales, £1,260,804 ; Victoria, £1,099,221 ; Queensland, £1 ; South Australia, £240,244 ; Western Australia, £1,457,290.

GRAIN AND PULSE, OTHER THAN WHEAT AND FLOUR.

Country.	1901.	1909–1913.*	1914–15–1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	43	477	1,690	1,474	5,028	474
East Indies	..	1,738	10,133	3,680	41,378	67,689
Hong Kong	777	76	1,515	1,867	5,663	6,760
India and Ceylon ..	3,033	8,708	18,759	42,722	25,532	17,222
Japan	7	58	47,854	47,354	191,767	106,499
Philippine Islands ..	946	6,151	5,317	16,001	7,518	2,326
Straits Settlements ..	..	1,008	4,969	9,748	12,968	9,109
Total ..	4,806	18,216	90,237	122,846	289,854	210,079

The exports given above for 1919–20 were shipped from the following States :—New South Wales, £20,931 ; Victoria, £177,528 ; Queensland, £28 ; South Australia, £781 ; Western Australia, £10,811.

* Annual average for the quinquennial period.

HAY AND CHAFF, AND COMPRESSED FODDER.

Country.	1901.	1909–1913.*	1914–15–1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	2,934	174	..	..	..	..
East Indies	14	1,285	843	323	1,655	3,420
Hong Kong	28	556	691	680	1,596	1,191
India and Ceylon ..	5,848	13,463	18,633	12,711	4,874	13,881
Japan	57	150	51	..	135	67
Philippine Islands ..	2,582	21,774	7,339	8,771	8,168	12,601
Straits Settlements ..	1,618	4,469	2,137	1,078	3,114	5,030
Total ..	13,081	41,871	29,694	23,563	19,542	36,190

The exports given above for the year 1919–20 were shipped from the several States as follows :—New South Wales, £1,097 ; Victoria, £32,016 ; Western Australia, £3,077.

HORSES.

Country.	1901.	1909–1913.*	1914–15–1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	4,460	274	..	..	..	250
East Indies	2,105	16,845	5,750	..	18,336	14,464
Hong Kong	775	345	16	..	80	50
India and Ceylon ..	78,723	137,810	315,351	479,520	146,758	86,801
Japan	100	1,904	1,145	750	1,350	1,770
Philippine Islands ..	190	7,116	1,052	200	3,800	3,330
Straits Settlements ..	15,513	13,480	3,510	900	5,915	15,192
Total ..	101,866	177,774	326,824	481,370	176,239	121,857

The horses exported to the above countries during 1919–20 were shipped from the following States :—New South Wales, £35,688 ; Victoria, £33,407 ; Queensland, £40,719 ; South Australia, £6,990 ; Western Australia, £5,053.

LEAD, PIG.

Country.	1901.	1909–1913.*	1914–15–1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	6,102	35,269	25,488	27,568	30,672	30,698
East Indies	18	363	818	1,146	2,945	463
Hong Kong	1,257	69,159	94,128	76,968	77,426	120,427
India and Ceylon ..	315	41,574	45,618	..	7,145	..
Japan	2,750	159,462	378,260	454,118	563,035	428,796
Philippine Islands ..	12	2,289	88	300	..	340
Straits Settlements ..	..	376	417	..	250	..
Total ..	10,454	308,492	544,817	560,100	681,473	580,724

The exports of pig lead in 1919–20 were shipped from New South Wales, £540,606 ; Victoria, £16,106 ; South Australia, £24,012.

* Annual average for the quinquennial period.

MEATS.—PRESERVED BY COLD PROCESS.

Country.	1901.	1909–1913.*	1914–15—1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	..	220	72	..	..	..
East Indies	98	2,507	1,809	131	21	1,637
Hong Kong	3,195	8,687	7,333	6,501	7,465	21,213
India and Ceylon ..	5,907	5,626	10,024	14,270	7,696	25,060
Japan	19	634	2	4	..	1,019
Philippine Islands ..	153,250	160,003	74,690	36,587	58,617	88,481
Straits Settlements ..	..	34,812	61,088	65,206	62,374	104,633
Total ..	162,469	212,489	155,018	122,699	134,173	242,049

The exports to the above-mentioned Eastern countries during 1919–20 of meats preserved by cold process were shipped from the following States:—New South Wales, £107,891; Victoria, £7,078; Queensland, £127,080.

MEATS.—OTHER THAN MEATS PRESERVED BY COLD PROCESS.

Country.	1901.	1909–1913.*	1914–15—1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	491	5,523	5,809	9,317	14,124	14,972
East Indies	15,035	14,130	24,632	25,177	52,567	73,454
Hong Kong	571	3,039	7,711	13,325	14,608	28,753
India and Ceylon ..	11,464	11,008	614,997	1,251,929	1,289,847	48,450
Japan	893	1,394	1,031	338	2,335	3,312
Philippine Islands ..	2,617	19,475	16,970	17,575	23,644	33,589
Straits Settlements ..	531	6,904	23,999	43,303	49,894	81,698
Total ..	31,602	61,473	695,149	1,360,964	1,447,019	284,228

The exports given above for the year 1919–20 were shipped from the following States:—New South Wales, £116,835; Victoria, £55,070; Queensland, £111,008; South Australia, £877; Western Australia, £438.

SANDALWOOD.

Country.	1901.	1909–1913.*	1914–15—1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	**7,905**	**8,814**	**14,208**	**9,857**	**18,767**	**18,307**
East Indies	..	..	**406**	..	**2,032**	**116**
Hong Kong	**53,991**	**42,566**	**67,899**	**76,093**	**92,518**	**174,659**
India and Ceylon ..	..	**3,836**	**3,664**	**1,275**	**1,588**	**1,860**
Japan	..	..	**480**	**482**	**1,500**	**482**
Straits Settlements ..	**15,341**	**4,257**	**11,414**	**12,236**	**22,063**	**71,522**
Total ..	**77,237**	**59,473**	**98,071**	**99,943**	**138,468**	**266,945**

The exports of sandalwood in 1919–20 were shipped from New South Wales, £7,080; Queensland, £26,664; Western Australia, £233,201.

* **Annual average for the quinquennial period.**

SKINS, HOOFS, HORNS, BONES, SINEWS, AND TALLOW.

Country.	1901.	1909–1913.*	1914–15—1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	..	336	30	..	20	1,742
East Indies	..	1,013	475	6	..	..
Hong Kong	1,234	409	603	1,183	1,247	4,633
India and Ceylon ..	2,761	9,477	8,510	78	11,719	167,579
Japan	11,829	66,755	209,924	233,941	447,454	772,881
Philippine Islands ..	165	510	281	..	18	290
Straits Settlements ..	430	523	1,095	112	4,086	146
Total ..	16,419	79,023	220,918	235,320	464,544	947,271

The above exports of skins, etc., in 1919–20 were shipped from the several States as follows:—New South Wales, £534,198; Victoria, £289,617; Queensland, £123,456.

TIN ORE.

Country.	1901.	1909–1913.*	1914–15—1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
Japan	..	..	21	..	..	..
Straits Settlements ..	4,096	298,723	134,017	28,385	..	..
Total ..	4,096	298,723	134,038	28,385	..	..

The export of tin ore to the Straits Settlements—the centre of the world's tin production—was for the purpose of treatment, and was shipped from the several States during 1917–18 as follows:—New South Wales, £7,359; Queensland, £17,926; Northern Territory, £3,100. Almost all Australian tin ore is now treated in the Commonwealth.

TIMBER, UNDRESSED.

Country.	1901.	1909–1913.*	1914–15—1918–19.*	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
China	4,090	8,712	3,574	..	..	5,996
East Indies	22	708	74	83	..	..
Hong Kong	..	10,562	469	8	2,197	2,969
India and Ceylon ..	61,246	288,442	32,123	..	650	13,948
Japan	418	897	3,041	11,827	2,276	6,921
Philippine Islands ..	9,278	8,997	..	..	..	..
Straits Settlements ..	4,861	1,606	260	899	135	..
Total ..	79,915	319,924	39,541	12,817	5,258	29,834

The above exports of timber during 1919–20 from the several States were shipped as follows:—New South Wales, £8,458; Western Australia, £21,276; Northern Territory, £100.

* Annual average for the quinquennial period.

WOOL.

Country.	1901.	1909-1913.*	1914-15—1918-19.*	1917-18.	1918-19.	1919-20.
	£	£	£	£	£	£
China	..	162	..	..	..	..
East Indies	112	..	..	..	..	..
Hong Kong	..	5	..	..	..	..
India and Ceylon ..	7,853	22,308	59,234	66,780	78,336	..
Japan	48,653	516,528	1,951,273	1,796,089	1,400,192	2,010,732
Philippine Islands ..	..	..	599	..	2,787	4,088
Total ..	56,618	539,003	2,011,103	1,862,869	1,481,315	2,014,820

The wool exported to the East by the several States during 1919-20 was shipped as follows:—New South Wales, £1,347,137; Victoria, £229,093; Queensland, £437,690

* Annual average for the quinquennial period.

§ 9. Trade of Commonwealth since Federation.

1. **Classified Summary of Australian Trade.**—The following tables present the trade of the Commonwealth arranged in classes according to the nature of the goods since the inauguration of the Commonwealth:—

STATISTICAL CLASSIFICATION OF IMPORTS AND EXPORTS.

Class.	Articles.
I.	FOODSTUFFS of animal origin but excluding living animals.
II.	FOODSTUFFS of vegetable origin.
III.	BEVERAGES (non-alcoholic), and substances used in making.
IV.	SPIRITUOUS AND ALCOHOLIC LIQUORS.
V.	TOBACCO, and preparations thereof.
VI.	LIVE ANIMALS.
VII.	ANIMAL SUBSTANCES (mainly unmanufactured), not foodstuffs.
VIII.	VEGETABLE SUBSTANCES and fibres.
IX.	(a) APPAREL; (b) TEXTILES; AND (c) MANUFACTURED FIBRES.
X.	OILS, FATS, AND WAXES.
XI.	PAINTS AND VARNISHES.
XII.	STONES AND MINERALS, used industrially.
XIII.	ORES AND METALS, unmanufactured or partly manufactured.
XIV.	(a) MACHINES AND MACHINERY; (b) OTHER MANUFACTURES OF METAL.
XV.	(a) INDIARUBBER AND INDIARUBBER MANUFACTURES; (b) LEATHER AND MANUFACTURES OF LEATHER, and substitutes therefor.
XVI.	WOOD AND WICKER, raw and manufactured.
XVII.	EARTHENWARE, CEMENTS, CHINA, GLASS, AND STONEWARE.
XVIII.	(a) PAPER; (b) STATIONERY.
XIX.	JEWELLERY, TIMEPIECES, AND FANCY GOODS.
XX.	OPTICAL, SURGICAL, AND SCIENTIFIC INSTRUMENTS.
XXI.	DRUGS, CHEMICALS, AND FERTILIZERS.
XXII.	MISCELLANEOUS.
XXIII.	GOLD AND SILVER; and BRONZE SPECIE.

COMMONWEALTH IMPORTS ARRANGED IN CLASSES, 1901 TO 1919–20.

Classes.	Annual Average. 1901–1903.	1904–1908.	1909–1913.	1914–15–1918–19.	1919–1920.
	£	£	£	£	£
I. Animal foodstuffs, &c.	968,856	712,311	885,409	1,177,020	1,459,212
II. Vegetable foodstuffs, &c.	3,760,481	1,702,919	2,025,919	4,022,721	7,182,849
III. Beverages (non-alcoholic), &c.	973,568	1,249,103	1,685,232	2,170,138	4,623,883
IV. Alcoholic liquors, &c.	1,481,061	1,318,719	1,712,009	1,493,960	1,308,686
V. Tobacco, &c.	647,073	646,062	889,118	1,099,573	2,743,535
VI. Live animals	75,051	99,131	247,027	100,742	117,519
VII. Animal substances, &c.	189,529	404,924	354,867	826,099	1,720,135
VIII. Vegetable substances, &c.	537,574	744,791	1,281,460	2,553,477	3,642,092
IX. Apparel, &c.	11,002,146	13,170,748	17,730,327	24,114,559	26,702,771
X. Oils, &c.	1,032,453	1,041,449	1,771,160	3,018,753	4,751,906
XI. Paints, &c.	325,583	378,840	533,054	570,006	459,136
XII. Stones, &c.	106,862	101,046	245,370	160,612	187,706
XIII. Ores and Metals, unmanufactured	1,145,808	878,026	1,493,406	1,123,048	924,366
XIV. Machinery and Metals, manufactured	7,576,311	8,931,724	15,854,262	14,190,421	21,573,114
XV. Rubber, Leather, &c.	530,645	840,740	1,501,435	1,802,308	2,192,520
XVI. Wood, &c.	1,558,010	1,849,220	3,028,794	2,075,254	2,933,500
XVII. Earthenware, &c.	747,604	719,529	1,202,949	1,181,223	1,239,685
XVIII. Paper, &c.	1,587,568	1,918,023	2,727,725	3,743,319	4,156,626
XIX. Jewellery, &c.	959,417	1,048,601	1,534,322	1,204,037	2,029,268
XX. Instruments, &c.	190,970	285,014	526,916	663,680	991,041
XXI. Drugs, &c.	1,548,739	1,831,693	2,377,190	3,378,667	3,648,755
XXII. Miscellaneous	2,292,798	2,849,614	5,185,447	3,726,612	4,325,838
XXIII. Gold and silver; and bronze specie	1,060,736	1,621,922	1,518,100	2,209,711	60,149
Grand Total	40,307,852	44,344,158	67,212,308	76,614,038	98,074,202

The exports are shewn according to the same classification, and the usual distinction is made between exports of Australian produce and re-exports.

COMMONWEALTH EXPORTS ARRANGED IN CLASSES, AND DISTINGUISHING AUSTRALIAN PRODUCE AND THE PRODUCE OF OTHER COUNTRIES, 1901 TO 1919–20.

Classes.	Annual Average. 1901–1903.	1904–1908.	1909–1913.	1914–15–1918–19.	1919–1920.
AUSTRALIAN PRODUCE.					
	£	£	£	£	£
I. Animal foodstuffs, &c.	3,321,043	5,014,822	8,546,135	12,816,939	18,148,656
II. Vegetable foodstuffs, &c.	2,671,745	6,211,212	10,312,256	13,406,386	35,949,908
III. Beverages (non-alcoholic), &c.	2,827	3,099	5,176	31,128	71,736
IV. Alcoholic liquors, &c.	133,487	117,871	136,031	200,269	438,837
V. Tobacco, &c.	6,347	51,566	72,826	145,997	276,735
VI. Live animals	317,775	320,374	287,447	405,887	245,528
VII. Animal substances, &c.	15,973,950	24,837,934	31,085,926	32,404,434	62,102,428
VIII. Vegetable substances, &c.	138,341	247,020	222,629	224,000	499,651
IX. Apparel, &c.	33,772	57,736	75,536	431,960	1,435,711
X. Oils, &c.	712,683	1,006,387	2,029,913	1,654,822	3,629,903
XI. Paints, &c.	1,434	3,167	6,023	39,581	230,555
XII. Stones, &c.	999,282	1,057,163	1,000,080	503,403	898,565
XIII. Ores and metals, unmanufactured	3,557,990	6,819,097	8,243,943	6,524,490	7,634,907
XIV. Machinery and metals, manufactured	121,519	163,301	285,674	495,278	885,878
XV. Rubber, Leather, &c.	630,388	542,834	617,904	1,413,123	2,646,348
XVI. Wood, &c.	605,301	944,402	1,011,771	408,936	559,026
XVII. Earthenware, &c.	11,178	24,125	14,620	46,095	121,018
XVIII. Paper, &c.	27,273	47,103	64,917	70,096	147,178
XIX. Jewellery, &c.	71,865	134,888	155,936	75,987	350,694
XX. Instruments, &c.	1,123	2,764	6,337	24,137	62,658
XXI. Drugs, &c.	125,531	198,157	282,923	657,154	968,282
XXII. Miscellaneous	85,545	112,846	191,061	449,540	693,752
XXIII. Gold and silver; and bronze specie	15,249,414	13,574,770	7,741,881	7,456,014	6,573,890
Grand Total	44,839,618	61,492,640	72,398,065	81,866,156	144,569,324

COMMONWEALTH EXPORTS ARRANGED IN CLASSES, AND DISTINGUISHING AUSTRALIAN PRODUCE AND THE PRODUCE OF OTHER COUNTRIES, 1901 TO 1919-20—*continued.*

Classes.	Annual Average.				
	1901-1903.	1904-1908.	1909-1913.	1914-15-1918-19.	1919-1920.

OTHER PRODUCE.

Classes.	1901-1903.	1904-1908.	1909-1913.	1914-15-1918-19.	1919-1920.
	£	£	£	£	£
I. Animal foodstuffs, &c. ..	83,729	27,859	22,818	94,614	70,795
II. Vegetable foodstuffs, &c. ..	100,548	223,530	186,289	279,724	270,713
III. Beverages (non-alcoholic), &c.	52,423	63,514	80,534	151,476	406,001
IV. Alcoholic liquors, &c. ..	44,650	31,120	32,420	69,833	176,524
V. Tobacco, &c.	51,175	38,604	54,075	82,756	136,348
VI. Live animals	1,355	3,043	5,305	4,311	24,296
VII. Animal substances, &c. ..	18,258	11,172	6,350	143,866	126,501
VIII. Vegetable substances, &c. ..	21,602	15,939	32,169	199,802	606,904
IX. Apparel, &c.	192,777	190,583	198,951	414,000	948,902
X. Oils, &c.	44,587	49,450	47,616	92,068	178,321
XI. Paints, &c.	10,635	8,394	7,617	8,675	11,760
XII. Stones, &c.	1,821	2,229	2,102	1,433	3,852
XIII. Ores and metals, unmanufactured	20,854	48,963	38,225	25,044	41,004
XIV. Machinery and metals, manufactured	215,794	214,577	282,961	297,817	505,283
XV. Rubber, Leather, &c. ..	16,439	29,602	60,754	62,769	155,036
XVI. Wood, &c.	28,970	32,999	34,057	26,199	52,082
XVII. Earthenware, &c.	19,636	19,751	15,390	17,070	35,693
XVIII. Paper, &c.	52,357	56,031	81,368	70,712	96,939
XIX. Jewellery, &c.	63,433	54,727	107,295	35,732	85,888
XX. Instruments, &c.	11,369	26,223	67,011	74,459	100,147
XXI. Drugs, &c.	47,866	48,706	59,322	117,152	150,062
XXII. Miscellaneous	96,667	149,545	230,030	264,856	993,509
XXIII. Gold and silver; and bronze specie	1,196,856	1,390,893	1,342,361	1,323,890	76,125
Grand Total	2,393,801	2,747,363	2,995,055	3,857,758	5,254,165

TOTAL EXPORTS.

Classes.	1901-1903.	1904-1908.	1909-1913.	1914-15-1918-19.	1919-1920.
	£	£	£	£	£
I. Animal foodstuffs, &c. ..	3,404,772	5,042,681	8,568,973	12,911,553	18,219,449
II. Vegetable foodstuffs, &c. ..	2,772,293	6,434,761	10,498,545	13,686,110	36,220,621
III. Beverages (non-alcoholic), &c.	55,250	66,613	85,710	182,604	477,737
IV. Alcoholic liquors, &c. ..	178,137	148,991	168,451	270,102	615,361
V. Tobacco, &c.	57,522	90,172	126,901	228,753	418,083
VI. Live animals	319,130	324,317	292,752	410,198	269,826
VII. Animal substances, &c. ..	15,992,208	24,849,106	31,092,282	32,548,300	62,228,929
VIII. Vegetable substances, &c. ..	159,943	262,959	254,798	424,402	1,106,555
IX. Apparel, &c.	226,549	257,319	274,487	845,860	2,384,613
X. Oils, &c.	757,270	1,055,837	2,077,529	1,746,890	3,808,224
XI. Paints, &c.	12,069	11,561	13,640	48,256	242,315
XII. Stones, &c.	1,001,103	1,059,392	1,002,162	504,836	902,417
XIII. Ores and metals, unmanufactured	3,578,844	6,868,060	8,282,168	8,549,534	7,676,811
XIV. Machinery and metals, manufactured	337,313	377,878	568,655	793,095	1,391,161
XV. Rubber, Leather, &c. ..	646,827	572,436	678,658	1,475,892	2,801,384
XVI. Wood, &c.	724,271	977,401	1,045,628	435,185	611,108
XVII. Earthenware, &c.	30,814	43,876	30,010	63,165	156,711
XVIII. Paper, &c.	79,630	103,134	146,285	140,808	244,117
XIX. Jewellery, &c.	185,298	189,615	263,231	111,719	436,582
XX. Instruments, &c.	12,492	28,987	73,348	98,596	162,805
XXI. Drugs, &c.	173,397	246,863	342,245	774,306	1,116,924
XXII. Miscellaneous	182,212	262,391	421,100	714,396	1,687,261
XXIII. Gold and silver; and bronze specie	16,446,270	14,965,663	9,084,242	8,779,404	6,649,515
Grand Total	47,283,614	64,240,003	75,392,020	85,743,914	149,823,509

§ 10. Movement of Specie and Bullion.

1. Specie and Bullion.—The following tables shew the value of gold and silver bullion, and specie, including bronze specie, imported and exported during the years 1901 to 1919-20:—

COMMONWEALTH IMPORTS AND EXPORTS OF SPECIE AND BULLION, 1901–20.

Items.	Annual Average. 1901–1903.	Annual Average. 1904–1908.	Annual Average. 1909–1913.	Annual Average. 1914–15–1918–19.	1919-20.
IMPORTS.					
	£	£	£	£	£
Gold—Specie	36,339	26,515	98,974	52,042	19
Bullion	1,080,679*a*	1,412,807	1,166,709	1,875,287	36,312
Total	1,117,018	1,439,322	1,265,683	1,927,329	36,331
Silver—Specie	93,939	162,348	231,563	152,585	8,152
Bullion	52	9,757	4,567	34,688	1,596
Total	93,991	172,105	236,130	187,273	9,748
Bronze—Specie	6,982	10,495	15,527	14,225	7
GRAND TOTAL	1,217,991	1,621,922	1,517,340	2,128,827	46,086
EXPORTS.					
	£	£	£	£	£
Gold—Specie	10,657,061	9,166,017	5,977,965	7,293,168	5,321,053
Bullion	5,088,338*a*	4,598,568*b*	1,808,324	264,895	226,154
Total	15,745,399	13,764,585	7,786,289	7,558,063	5,547,207
Silver—Specie	28,905	26,409	48,580	66,206	105,657
Bullion	812,184*c*	682,354	489,510	827,776	979,307
Total	841,089	708,763	538,090	893,982	1,084,964
Bronze—Specie	735	2,337	217	231	2,045
Total—					
Australian Produce	15,390,368	13,085,033	6,982,406	7,128,886	6,558,091
Other Produce	1,196,855	1,390,652	1,342,190	1,323,390	76,125
GRAND TOTAL	16,587,223	14,475,685	8,324,596	8,452,276	6,634,216

(*a*) Includes gold contained in matte.
(*b*) Includes gold contained in matte up to the year 1906. The value of gold contained in matte exported during 1907 was £350,601; 1908, £761,100; 1909–13, £477,906; 1914–15–1918–19, £112,850; and 1919–20, £874.
(*c*) Includes silver contained in matte. The value of silver contained in matte exported during 1904–1908 was £267,636; 1909–1913, £281,740; 1914–15–1918–19, £214,278; and 1919–20, £14,425.

COMMONWEALTH IMPORTS AND EXPORTS OF SPECIE AND GOLD AND SILVER BULLION FROM AND TO VARIOUS COUNTRIES, 1919–20.

Country.	Imports.			Exports.		
	Specie.	Bullion.	Total.	Specie.	Bullion.	Total.
	£	£	£	£	£	£
United Kingdom ..	7	1,518	1,525	47,897	287,476	335,373
Canada	..	7	7	773	..	773
Ceylon	223	..	223	..	..	..
Hong Kong ..	..	..	..	1,153,118	39,715	1,192,833
India	..	..	..	482,657	740,203	1,222,860
Malta	1,234	..	1,234	..	..	..
New Zealand ..	18	24,809	24,827	4,461	1,154	5,615
Pacific Islands—						
Bismarck Archipelago ..	6,626	..	6,626	34,960	..	34,960
Fiji	..	..	..	3,800	320	4,120
Gilbert Islands ..	..	..	..	1,400	..	1,400
Pleasant Island	..	..	..	1,500	..	1,500
Solomon Islands	..	..	..	7,425	..	7,425
Papua	..	9,660	9,660	8,855	1	8,856
South African Union	..	..	..	64	..	64
Straits Settlements	..	..	..	3,433,586	..	3,433,586
Total British Countries ..	8,108	35,994	44,102	5,180,496	1,068,869	6,249,365
China	..	..	..	..	136,515	136,515
East Indies—						
Java	..	..	..	245,118	..	245,118
Timor (Dutch) ..	..	..	..	1,675	..	1,675
Japan	..	..	..	..	77	77
Pacific Islands—						
Hawaiian Islands	..	..	..	77	..	77
Marshall Islands	..	..	..	773	..	773
New Caledonia ..	5	..	5	..	..	..
New Hebrides ..	..	..	..	513	..	513
Philippine Islands	..	..	..	103	..	103
United States of America ..	65	1,914	1,979	..	..	..
Total Foreign Countries ..	70	1,914	1,984	248,259	136,592	384,851
GRAND TOTAL	8,178	37,908	46,086	5,428,755	1,205,461	6,634,216

§ 11. Effects of Prices on the Values of Exports.

1. **Significance of Price in Totals.**—In comparing the value of exports from, and also imports into, any country for a series of years, the question naturally arises as to how much any variation in the aggregate value is due to fluctuations in prices, and how much to increase or decrease of actual quantities, for, in aggregates expressed only in value—the only possible method when the commodities differ—the two sources of variation are confused.

The scheme of comparison adopted has been to take an annual average, for an extended period, of the quantities of all such articles of export as are recorded by quantity, and to apply to the average quantities so obtained the average prices in each year. The quantities used to produce the following results are the averages for 19½ years, viz., from 1st January, 1897, to 30th June, 1916, which it is considered may be taken as representing

the general quantitative composition or norm of the exports from the Commonwealth. The results published in issues of this work prior to No. 12., 1919, were ascertained by applying to the quantities exported during each year the average price per unit ruling in some year arbitrarily taken for the purposes of comparison as the basic year. The advantage of the method now adopted is that the results are comparable throughout, whereas under the method previously followed each year was comparable with the basic year only.

2. **Effect of Prices.**—The following table shews the values of exports as actually recorded in each year, together with the values computed on the assumption that the prices of 1901 were maintained. The table also shews the yearly "price-levels" based upon the results so ascertained.

This table obviously furnishes a measure of the influence of prices on the value of exports of each year since 1901. Column IV.—values computed on 1901 prices—represents the volume of exports (less specie and gold bullion), expressed in the common denomination of value, and from the figures therein it will be seen that, had the prices of 1901 remained constant, the value of the exports of merchandise during the year 1919–20 *for example, would have been £64,103,424 only, instead of £144,168,600—the value* actually recorded. The difference between these amounts (£80,065,176) results from a rise of 124.9 per cent. (*i.e.*, from 1,000 to 2,249) in the price of commodities for the period intervening between 1901 and 1919–20.

It will be seen from the column of "Price-Levels" that prices as indicated by the Commonwealth exports rose steadily from the beginning of the decade to the year 1907. The financial crisis in the United States of America caused a pronounced fall in the prices of 1908. Owing to the large proportion of the aggregate value of exports represented by wool and wheat, any change in the price of these commodities has a marked effect on the index-numbers for the total group of exports, and it is to their influence that the fall of prices in 1911 is mainly due.

EFFECT OF PRICES ON THE VALUE OF COMMONWEALTH EXPORTS, AND EXPORT PRICE LEVELS FOR THE PERIOD 1901 TO 1920-21.

Year.	Exports of Specie and Gold Bullion.	Other Exports.		Total Exports (including Specie and Gold Bullion).		Price-Levels.(a) Year 1901 =1,000.
		Values as Recorded.	Values Computed on Mass Prices of 1901.	Values as Recorded.	Values Computed on Mass Prices of 1901.	
I.	II.	III.	IV.	V.	VI.	VII.
	£	£	£	£	£	
1901 ..	14,347,776	35,348,396	35,348,396	49,696,172	49,696,172	1000
1902 ..	14,568,640	29,346,447	26,948,068	43,915,087	41,516,708	1089
1903 ..	18,408,702	29,841,410	25,881,535	48,250,112	44,290,237	1153
1904 ..	16,914,691	40,571,224	35,620,038	57,485,915	52,534,729	1139
1905 ..	10,977,111	45,863,924	38,219,936	56,841,035	49,107,047	1200
1906 ..	16,895,059	52,842,704	42,005,330	69,737,763	58,900,389	1258
1907 ..	10,571,263	62,252,984	47,594,024	72,824,247	58,165,287	1308
1908 ..	13,608,531	50,702,527	42,607,165	64,311,058	56,215,696	1190
1909 ..	8,300,376	56,928,460	47,718,742	65,318,836	56,109,118	1193
1910 ..	4,178,097	70,313,053	57,351,593	74,491,150	61,529,690	1226
1911 ..	11,561,639	67,920,619	58,501,825	79,482,258	70,063,464	1161
1912 ..	11,881,216	67,214,874	53,218,427	79,096,090	65,099,643	1263
1913 ..	3,164,105	75,407,664	58,455,553	78,571,769	61,619,658	1290
1914–15 ..	2,474,197	58,118,379	44,740,861	60,592,576	47,215,058	1299
1915–16 ..	10,391,019	64,387,302	40,469,705	74,778,321	50,860,724	1591
1916–17 ..	11,521,815	86,433,667	43,985,398	97,955,482	55,507,213	1965
1917–18 ..	6,483,265	74,945,956	35,962,551	81,429,221	42,445,816	2084
1918–19 ..	7,252,202	106,711,774	52,489,805	113,963,976	59,742,007	2033
1919–20 ..	5,654,909b	144,168,600	64,103,424	149,823,509	68,516,379	2249
1920–21c ..	5,395,000b	126,634,000	56,182,000	132,029,000	60,264,000	2254

(a) These are index-numbers for the total group of exports, excluding specie and gold bullion.
(b) Including premium on gold exported 1919–20, £1,241,954, or 28.8 per cent. on standard price; 1920–21, £1,313,024, or 32.7 per cent.
(c) Preliminary figures, subject to alteration.

The following table of index-numbers shews the variations in price of the different classes of goods exported grouped according to their industrial origin :—

PRICE-LEVELS OF COMMONWEALTH EXPORTS, 1901-20.

Year.	Agricultural Produce.	Pastoral Produce.	Dairy Produce.	Mineral Produce.(a)	Miscellaneous.	All Classes.(a)
1901	1,000	1,000	1,000	1,000	1,000	1,000
1902	1,161	1,117	1,165	842	1,108	1,089
1903	1,201	1,200	944	819	1,167	1,153
1904	1,127	1,232	906	851	946	1,139
1905	1,193	1,291	995	920	920	1,200
1906	1,155	1,344	1,021	1,113	991	1,258
1907	1,184	1,403	1,044	1,148	1,035	1,308
1908	1,445	1,212	1,115	896	1,002	1,190
1909	1,461	1,219	1,031	891	1,079	1,193
1910	1,436	1,266	1,072	900	1,195	1,226
1911	1,243	1,193	1,085	944	1,227	1,161
1912	1,388	1,268	1,198	1,133	1,254	1,263
1913	1,324	1,334	1,124	1,114	1,329	1,290
1914–15 ..	1,480	1,323	1,176	1,066	1,221	1,299
1915–16 ..	1,927	1,589	1,488	1,393	1,106	1,591
1916–17 ..	1,726	2,131	1,690	1,650	1,357	1,965
1917–18 ..	1,954	2,250	1,624	1,760	1,401	2,084
1918–19 ..	1,864	2,166	1,855	1,692	1,775	2,033
1919–20 ..	2,145	2,393	2,023	1,787	2,150	2,249
1920–21 ..	3,177	2,093	2,854	1,813	2,179	2,254

(a) Excluding gold which since February, 1919, has been exported at a premium. During the year 1919–20 the premium realized was 28.8 per cent., and during 1920–21, 32.7 per cent.

The high index-numbers for mineral produce during 1906 and 1907 reflect the world's prices for that period, when prices registered for all the principal industrial metals touched a point higher than any previously recorded for many years.

The lower index for agricultural produce exported during 1916–17 is due to the lower price registered for wheat, viz., 4s. 10d. per bushel as against 5s. 6d. per bushel for 1915–16.

§ 12. External Trade of Australia and other Countries.

1. Essentials of Comparisons.—Direct comparisons of the external trade of any two countries are possible only when the general conditions prevailing therein, and the scheme of record, are sensibly identical. For example, in regard to the mere matter of record, it may be observed that in one country the value of imports may be the value at the port of shipment, while in another the cost of freight, insurance, and charges may be added thereto. Or again, the values of imports and exports in the one may be declared by merchants, whereas in the other they may be the official prices, fixed from time to time by a commission constituted for the purpose. In later years, too, a very substantial difference in the value of imports would arise from the different methods of converting the moneys of foreign countries, i.e., from the application of current rates of exchange or of the mint par. The figures relating to the external trade of any country are also affected in varying degree by the extent to which they include transit or re-export trade. Including bullion and specie, the transit trade of Belgium, for example, represented, prior to the war, approximately 40 per cent. of the gross trade recorded; of Switzerland, 45 per cent.; of France, 20 per cent.; and of the United Kingdom, 15 per cent.; whereas in Australia the same element represents, normally, about 4 per cent., and in New Zealand even less.

2. "Special Trade" of Various Countries.—Special trade may be defined, agreeably to the practice of the British Board of Trade, as (*a*) imports entered for consumption in the country (*as distinguished from imports for transhipment or re-export*) and (*b*) exports of domestic products.

TRADE OF VARIOUS COUNTRIES (IMPORTS FOR HOME CONSUMPTION AND EXPORTS OF DOMESTIC PRODUCTS, INCLUDING BULLION AND SPECIE) FOR LATEST AVAILABLE YEAR.

Country.	Year ended	Trade.			Trade per Inhabitant.								
		Imports.	Exports.	Total.	Imports.			Exports.			Total.		
		£1,000	£1,000	£1,000	£	s.	d.	£	s.	d.	£	s.	d.
C'wealth of Australia	30/6/20	98,063	144,569	242,632	18	13	10	27	11	1	46	4	11
	31/12/13	76,323	75,113	151,436	15	17	11	15	12	10	31	10	9
United Kingdom (*a*)	31/12/20	1,714,336	1,335,569	3,049,905	37	17	5	29	10	1	67	7	6
	31/12/13	671,265	525,461	1,196,726	14	11	8	11	8	4	26	0	0
Canada (*a*)	31/3/20	218,744	254,697	473,441	24	6	5	28	6	4	52	12	9
	31/3/14	132,019	89,915	221,934	16	13	6	11	7	2	28	0	8
New Zealand	31/12/20	60,754	45,592	106,346	51	9	1	38	12	3	90	1	4
	31/12/13	21,879	22,578	44,457	20	10	7	21	3	8	41	14	3
United States of America	30/12/19	1,082,284	2,256,139	3,338,423	9	19	6	20	15	11	30	15	5
	30/6/14	391,780	493,182	884,962	4	0	0	5	0	8	9	0	8
Argentine Republic	31/12/20	52,416	206,208	258,624	6	6	7	24	18	2	31	4	9
Austria-Hungary	31/12/12	149,026	121,345	270,371	2	19	4	2	8	4	5	7	8
Belgium ..	31/12/20	220,780	172,096	392,876	28	17	10	22	10	5	51	8	3
	31/12/12	210,211	160,054	370,265	27	15	3	21	2	10	48	18	1
Brazil ..	31/12/20	124,406	107,514	231,920	4	1	7	3	10	6	7	12	1
	31/12/12	63,425	74,649	138,074	2	12	1	3	1	2	5	13	3
Denmark ..	31/12/20	132,578	66,453	199,031	43	14	3	21	18	3	65	12	6
	31/12/12	41,954	33,940	75,894	14	19	8	12	2	5	27	2	1
France ..	31/12/20	656,864	424,122	1,080,986	16	11	9	10	14	2	27	5	11
	31/12/12	350,482	281,495	631,977	8	16	9	7	1	11	15	18	8
German Empire ..	31/12/12	541,675	447,392	989,067	8	3	9	6	15	3	14	19	0
Italy ..	31/12/20	204,409	100,567	304,976	5	11	3	2	14	9	8	6	0
	31/12/12	149,113	97,536	246,649	4	5	2	2	15	8	7	0	10
Japan ..	31/12/20	375,516	263,980	639,496	6	11	7	4	12	6	11	4	1
	31/12/12	66,007	57,972	123,979	1	5	3	1	2	2	2	7	5
Netherlands	31/12/20	314,717	163,412	478,129	46	8	6	24	2	2	70	10	8
Norway	31/12/17	92,295	43,779	136,074	35	1	4	16	12	8	51	4	0
	31/12/12	28,756	18,147	46,903	11	15	9	7	8	10	19	4	7
Portugal ..	31/12/12	17,035	7,867	24,902	3	0	10	1	8	2	4	9	0
Spain ..	31/12/12	42,089	41,826	83,915	2	2	9	2	2	6	4	5	3
Sweden ..	31/12/20	188,436	128,156	316,592	32	8	3	22	0	10	54	9	1
	31/12/12	44,095	42,257	86,352	7	17	4	7	10	10	15	8	2
Switzerland	31/12/20	196,792	152,180	348,972	49	19	8	38	13	1	88	12	9
	31/12/12	81,577	55,629	137,206	21	6	7	14	10	1	35	17	6
Uruguay ..	31/12/11	9,333	8,840	18,173	7	18	6	7	10	1	15	8	7

(*a*) Excluding Bullion and Specie.

In the above table the figures relate, as nearly as is possible, to imports entered for consumption in the various countries quoted, and to exports of their domestic products. It is to be noted, however, that these figures do not unequivocally denote the same thing throughout, since, in the United Kingdom and other manufacturing countries, raw or partly manufactured materials are imported as for home consumption, and, after undergoing some process of manufacture or further modification, are re-exported as domestic production, and further, the statistical records of many countries do not distinguish between bullion and specie imported for the use of the particular country (home consumption) and the amount in transit, nor between the exports of that produced within the country and that re-exported. Nevertheless, a comparison of this character reveals approximately the extent of the external trade which otherwise would not be manifest. The figures relating to foreign countries have been converted on the average of the commercial rates of exchange for the years subsequent to the war.

3. External Trade as a Measure of Prosperity.—External trade is not necessarily a measure of the prosperity of a country. It is, for example, obvious that the external trade of a community depends not only upon the aggregate of its requirements, but also upon the extent to which it fails to supply requirements from its own resources. A community largely self-contained, for example, may have but a small external trade per head, and yet, by virtue of its capacity to produce and manufacture its own raw material, may

actually enjoy greater prosperity and a higher standard of living than another country whose external trade per head is much greater. The same observation applies equally to comparisons of the trade of the same country at different periods. A young country, the industries and export trade of which are mainly connected with raw or natural products, may, for example, through internal development, find the growth of its external trade diminishing per head of population without necessarily suffering any real diminution in the well-being of its people. In this regard it is interesting to contrast the trade per head of say, Belgium, New Zealand, and the United States of America. Prior to the war trade per unit of population for any year was greatest in Belgium (£48 18s. 1d. in 1912), with New Zealand next (£41 14s. 3d.), whereas for the United States the trade was only £9 0s. 8d. per inhabitant. Belgium and New Zealand represent conditions almost directly opposite to one another in the scheme of industrial development, yet the trade per head of each was abnormally high in comparison with that of most other countries. The large trade of Belgium was attained by the export of the products of highly organized manufacturing industries, based on the supplies of coal and iron within the country, in exchange for the raw materials for those industries and for food. In New Zealand the circumstances are reversed, inasmuch as in that country the energies of the people are mainly applied to primary industries, the produce of which, being largely in excess of local requirements, is exported in exchange for manufactured goods. The relatively small trade per head of population of the United States, as compared with Belgium or New Zealand, does not indicate that the people of the United States are in an inferior condition, but rather that their industries are more nearly balanced, with the result that a large proportion of the requirements of the nation is supplied from within its own territory, and consequently a smaller foreign trade is sufficient to supply the fewer remaining wants of the people, or, in other words, it indicates that as a nation the United States is more nearly self-contained.

The small foreign trade per inhabitant of Japan, Spain, and Portugal is, undoubtedly, due in some measure to a lower standard of living, but to what extent this factor is responsible, and how much is due to the capacity to supply all kinds of material wants from their own resources, could be ascertained only from a consideration of the general social and industrial conditions prevailing in each country. It is further obvious that circumstances may arise when enlargement of both imports and exports is actually a consequence of temporary economic difficulties. For example, in 1903, owing to shortage in the local supply, it became necessary to *import* wheat and flour into Australia to the value of £2,556,968, and to meet the charges for this by equivalent *exports*, the effect, considered *per se*, being to enlarge both. In this case the increase is not an evidence of prosperity. Even more pronounced instances of the same nature are furnished by the post-war trade figures for the United Kingdom and some European countries as shewn in the foregoing table. The depletion of stocks during the war period made it necessary to import larger quantities of essential goods. The effect of the larger imports was accentuated by the higher prices due to the combined effects of the scarcity of goods and inflated currency. The resultant large increases in the recorded value of the trade cannot, under such circumstances, be taken as an indication of greater prosperity.

§ 13. Trade of the United Kingdom with Australia, compared with Competing Countries.

1. Proportion of Trade from United Kingdom and Competing Countries.—The failure of the United Kingdom to maintain the position formerly held in the import trade of Australia has been a matter of more than ordinary interest for some years. Since 1908, a permanent resident Commissioner, appointed by the British Board of Trade, has been established in Australia for the purpose of advising manufacturers and merchants in the United Kingdom with regard to Australian trade affairs. From the 8th August, 1907, the Commonwealth Customs Tariffs have provided special rates in

favour of goods from the United Kingdom, with the object of assisting the British manufacturer to retain or improve his position in this market. The percentages given in the following table shew the proportions of the imports into Australia from the United Kingdom, and from other countries mentioned, during each of the years 1886 to 1919-20 :—

PROPORTION OF COMMONWEALTH IMPORT TRADE FROM VARIOUS COUNTRIES, 1886 TO 1919-20.

Year.	Percentage Proportions from— United K'dom.	British Poss'ns.	Germ'y.	United States.	Total Foreign C'tries.	Year.	Percentage Proportions from— United K'dom.	British Poss'ns.	Germ'y.	United States.	Total Foreign C'tries.
1886 ..	73.37	11.23	2.05	8.11	15.40	1903 ..	52.51	13.17	6.24	16.84	34.32
1887 ..	72.26	12.50	2.28	5.37	15.24	1904 ..	60.68	12.22	7.17	12.40	27.10
1888 ..	71.62	12.03	2.71	6.48	16.35	1905 ..	60.17	14.04	6.42	11.70	25.79
1889 ..	68.98	13.45	3.65	6.67	17.57	1906 ..	59.39	15.09	7.16	10.36	25.52
1890 ..	68.08	12.66	4.77	6.54	19.26	1907 ..	61.59	12.93	6.85	11.33	25.48
1891 ..	70.15	11.40	4.53	6.79	18.45	1908 ..	60.10	12.83	7.05	12.13	27.07
1892 ..	70.74	11.37	4.32	6.04	17.89	1909 ..	60.92	13.45	6.51	9.78	25.63
1893 ..	72.78	12.14	3.40	4.98	15.08	1910 ..	61.06	13.11	6.30	10.82	25.83
1894 ..	71.92	11.96	3.78	5.39	16.12	1911 ..	58.98	12.86	6.63	11.57	28.16
1895 ..	71.62	11.46	4.42	5.95	16.92	1912 ..	58.76	12.26	6.58	12.09	28.98
1896 ..	68.28	10.74	5.31	8.59	20.98	1913 ..	59.70	12.42	6.22	11.94	27.88
1897 ..	66.22	10.72	5.75	10.10	23.06	1914–15	58.82	14.64	2.02	14.89	26.54
1898 ..	66.62	10.88	5.86	10.16	22.50	1915–16	51.10	16.46	0.05	19.76	32.44
1899 ..	61.85	11.75	6.07	13.00	26.40	1916–17	52.47	16.03	0.06	20.37	31.50
1900 ..	61.28	11.28	6.54	12.16	27.44	1917–18	39.90	21.26	0.02	24.38	38.84
1901 ..	59.47	11.22	6.59	13.80	29.31	1918–19	37.10	22.15	0.00	27.29	40.75
1902 ..	58.64	13.22	6.53	12.27	28.14	1919–20	43.56	16.46	0.00	24.02	39.98

In order to draw accurate conclusions from the above table, however, special attention must be given to the nature of imports from the United States, since the imports from that country have in some years been increased by imports of breadstuffs, a trade in which the United Kingdom could not participate. The years affected by the imports of breadstuffs were 1886, 1889, 1896, 1897, 1903 and 1914–15. Increased imports of such items as kerosene oil and timber also tend to increase the proportion of imports from the United States without any prejudicial effect on the trade of the United Kingdom. Similar modification is not necessary in regard to Germany, as the nature of the imports from that country was substantially the same as from the United Kingdom. The inclusion of specie and bullion, which have been received mainly from New Zealand and other British possessions, also obscures to some extent the essential facts. Nevertheless the figures presented indicate general tendencies. It will be noticed that although in the earlier years under review the proportion of imports which were shipped from the United Kingdom declined in a very marked degree from 73.37 per cent. in 1886 to 61.85 per cent. in 1899, from the latter year to the outbreak of war the proportion has been well sustained at about 60 per cent. of the whole.

It has already been pointed out in this chapter that, prior to the year 1905, imports into the Commonwealth were recorded only against the country whence they were directly imported. Although the values of direct imports do not afford satisfactory data, it is necessary for any comparison extending further back than 1905 to use such figures. These figures are unsatisfactory on account of the varying proportions of indirect trade.

In order to furnish a comparison free from such trade as, from its nature, is not open to the United Kingdom, the following table, shewing the direct imports during the years 1886, 1906, 1913, and 1919-20 of the principal classes of goods which enter largely into the trade of the countries named, has been prepared. It may be mentioned that the imports for the year 1886 were extracted from the "Statistical Registers" of the several States for a comparison—published in a previous issue—with the year 1906, and as their compilation involved a large amount of labour they are again utilised for comparison with the later years.

PRINCIPAL *DIRECT* IMPORTS INTO THE COMMONWEALTH FROM THE UNITED KINGDOM, GERMANY, AND THE UNITED STATES, 1886, 1906, 1913, AND 1919-20.

Nature of Imports.	Year.	United Kingdom.	Germany.	United States.	All Countries.
		£	£	£	£
Foodstuffs of animal origin..	1886	348,950	5,603	70,959	674,296
	1906	293,950	24,319	140,781	697,830
	1913	385,307	61,096	269,826	947,697
	1919-20	374,830	..	473,415	1,459,212
Alcoholic liquors ..	1886	1,801,200	82,185	82,730	2,120,877
	1906	1,003,394	91,460	2,491	1,278,194
	1913	1,487,818	205,670	2,940	1,947,248
	1919-20	1,176,806	..	3,524	1,308,686
Apparel, textiles, etc. (including boots)	1886	9,845,182	54,350	15,336	10,316,989
	1906	10,978,396	418,235	219,793	13,417,928
	1913	15,356,950	575,303	392,084	19,559,304
	1919-20	18,092,854	..	2,830,740	26,702,771
Metals unmanufactured and partly manufactured(*a*) ..	1886	403,809	2,241	..	430,950
	1906	696,331	62,945	34,927	927,785
	1913	1,191,583	113,152	106,731	1,809,846
	1919-20	616,713	..	243,534	924,366
Manufactures of metal (including machinery) ..	1886	4,616,924	94,832	311,342	5,190,901
	1906	5,532,151	954,094	1,454,746	8,480,290
	1913	12,625,218	1,396,906	3,374,215	19,152,660
	1919-20	12,010,155	2,985	8,121,331	21,573,114
Paper and stationery ..	1886	1,260,531	21,038	39,700	1,340,627
	1906	1,207,720	261,684	288,509	1,838,474
	1913	2,083,736	255,234	230,803	3,134,750
	1919-20	1,387,572	..	1,377,211	4,156,026
Jewellery, timepieces, fancy goods	1886	659,833	24,206	57,477	789,127
	1906	740,850	140,950	59,151	1,045,164
	1913	964,966	182,040	90,508	1,410,555
	1919-20	1,163,217	12	238,624	2,029,268
Earthenware, cements, etc.	1886	755,907	78,762	24,711	938,476
	1906	313,112	225,321	37,227	683,094
	1913	695,650	454,822	58,616	1,568,531
	1919-20	574,095	3	249,110	1,239,685
Drugs, chemicals, fertilizers, etc.	1886	511,216	8,660	33,362	766,243
	1906	954,507	216,224	105,842	1,806,851
	1913	1,072,607	264,768	122,435	2,715,127
	1919-20	1,694,909	..	819,195	3,648,755
Leather, and mfs. thereof (excluding boots) and substitutes therefor, including indiarubber	1886	285,601	6,357	53,588	363,332
	1906	682,238	70,028	116,356	924,968
	1913	889,870	243,471	289,285	1,749,046
	1919-20	578,149	..	1,002,930	2,192,520
Total above-mentioned imports	1886	20,489,153	378,234	689,225	22,937,818
	1906	22,402,658	2,465,260	2,465,823	31,160,378
	1911	33,071,796	3,332,789	4,393,572	47,566,734
	1913	36,753,705	3,752,462	4,937,443	54,084,764
	1916-17	32,384,785	34,089	10,235,362	53,634,416
	1917-18	22,342,509	9,511	10,258,722	44,359,445
	1918-19	34,031,891	2,262	19,421,711	71,265,376
	1919-20	37,669,300	3,000	15,359,614	65,235,003
Total imports (less bullion and specie)	1886	24,974,939	699,075	2,087,213	33,885,284
	1906	26,437,768	3,202,990	4,633,331	42,413,995
	1911	39,145,829	4,427,153	7,747,470	64,934,538
	1913	47,422,225	4,956,828	9,522,502	78,196,109
	1916-17	39,983,227	47,675	15,526,998	75,954,890
	1917-18	24,825,067	11,553	15,193,157	60,675,683
	1918-19	37,950,595	2,356	27,927,188	94,867,459
	1919-20	43,111,145	3,085	23,766,047	98,914,143

(*a*) Mainly pig iron and bar and rod iron. Gold and silver bullion not included.

PERCENTAGE ON TOTAL COMMONWEALTH IMPORTS OF PRINCIPAL *DIRECT* IMPORTS FROM UNITED KINGDOM, GERMANY, AND UNITED STATES, 1886, 1906, 1913, AND 1919-20.

Nature of Imports.	Year.	United Kingdom.	Germany.	United States.	All Countries.
Foodstuffs of animal origin ..	1886	51.75	0.83	10.52	100
	1906	42.12	3.48	21.02	100
	1913	40.66	6.45	28.47	100
	1919-20	25.69	..	32.44	100
Alcoholic liquors	1886	84.69	3.86	3.89	100
	1906	78.50	7.16	0.19	100
	1913	76.41	10.56	0.15	100
	1919-20	89.92	..	0.27	100
Apparel, textiles, etc. (including boots)	1886	95.44	0.53	0.15	100
	1906	81.82	3.12	1.64	100
	1913	78.51	2.94	2.00	100
	1919-20	67.76	..	10.60	100
Metals unmanufactured and partly manufactured ..	1886	93.72	0.52	..	100
	1906	75.06	6.78	3.76	100
	1913	62.73	5.96	5.62	100
	1919-20	66.72	..	26.35	100
Manufactures of metals ..	1886	88.93	1.83	6.00	100
	1906	65.24	11.25	17.15	100
	1913	65.92	7.29	17.62	100
	1919-20	55.67	0.01	37.65	100
Paper and stationery	1886	94.03	1.57	2.96	100
	1906	65.69	14.23	15.69	100
	1913	66.47	8.14	7.36	100
	1919-20	33.38	..	33.13	100
Jewellery, timepieces, and fancy goods	1886	83.62	3.07	7.28	100
	1906	70.89	13.48	5.66	100
	1913	68.42	12.91	6.42	100
	1919-20	57.32	0.00	11.76	100
Earthenware, cements, etc. ..	1886	80.55	8.39	2.63	100
	1906	45.84	32.99	5.45	100
	1913	44.35	29.00	3.74	100
	1919-20	46.31	0.00	20.09	100
Drugs, chemicals, fertilizers ..	1886	66.71	1.13	4.36	100
	1906	51.13	11.58	5.67	100
	1913	39.50	9.75	4.51	100
	1919-20	46.45	..	22.45	100
Leather and mfs. thereof, and substitutes therefor, including indiarubber	1886	78.60	1.75	15.30	100
	1906	73.75	7.60	12.58	100
	1913	50.88	13.92	16.54	100
	1919-20	26.37	..	45.74	100
Total above-mentioned imports	1886	89.31	1.65	3.01	100
	1906	71.89	7.91	7.91	100
	1911	69.53	7.01	9.24	100
	1913	67.96	6.94	9.13	100
	1916-17	60.38	0.06	19.08	100
	1917-18	50.37	0.02	23.13	100
	1918-19	48.60	0.00	27.25	100
	1919-20	57.74	0.00	23.55	100
Total imports (less bullion and specie)	1886	73.71	2.06	6.16	100
	1906	62.34	7.55	10.92	100
	1911	60.28	6.82	11.93	100
	1913	60.66	6.34	12.18	100
	1916-17	52.64	0.06	20.44	100
	1917-18	40.91	0.02	25.04	100
	1918-19	40.00	0.00	29.44	100
	1919-20	43.58	0.00	24.03	100

The foregoing table shows that the share of the United Kingdom, as indicated by the records according to "Country of Shipment," in the trade of those classes of goods enumerated—representing about 90 per cent. of the total imports from that country—has declined from 89.31 per cent. of the whole in 1886 to 57.74 per cent. in 1919-20. The value of these imports from the United Kingdom has increased from £20,489,153 in 1886 to

only £37,669,300 in 1919–20, or by 83.85 per cent., while the total value of similar imports had increased from £22,937,818 to £65,235,003, or by 184.40 per cent. The figures given in this table for the year 1919–20 require some modification on account of the method used in converting exchange. The result would be to materially reduce the per centage share of the United Kingdom. *This matter is more fully dealt with in* connexion with the following table which gives an analysis of the imports from 1908–12 to 1919–20, according to the countries of origin of the goods.

IMPORTS INTO THE COMMONWEALTH OF PRODUCTS OR MANUFACTURES OF THE UNITED KINGDOM, FRANCE, GERMANY, JAPAN, AND THE UNITED STATES OF AMERICA DURING THE YEARS 1908-12 TO 1919-20.

Nature of Imports.	Year.	United Kingdom.	France.	Germany.	Japan.	U.S. of America.	All Countries.
		£	£	£	£	£	£
Foodstuffs of animal origin ..	1908–12	269,073	4,269	8,253	5,747	212,640	862,778
	1913 ..	301,025	3,093	12,071	6,988	259,229	947,697
	1917–18	6,576	102	..	29,908	521,020	1,080,249
	1918–19	26,218	115	..	23,034	205,063	586,562
	1919–20	311,934	1,081	..	13,554	429,137	1,459,212
Alcoholic liquors ..	1908–12	1,039,501	295,122	85,092	905	2,370	1,618,769
	1913 ..	1,227,561	343,403	143,477	1,755	2,805	1,947,248
	1917–18	1,053,479	108,860	..	309	27,597	1,348,574
	1918–19	961,875	65,897	..	993	15,820	1,263,324
	1919–20	941,290	219,271	85	947	1,331	1,308,686
Apparel (including boots), textiles, etc.	1908–12	10,473,807	820,485	1,503,797	396,687	450,903	16,565,629
	1913 ..	11,920,600	960,377	1,698,283	475,954	621,954	19,559,304
	1917–18	12,361,312	706,577	906	2,513,380	1,586,102	21,752,258
	1918–19	19,880,413	912,808	42	4,810,637	4,109,844	36,237,171
	1919–20	15,801,397	1,315,034	1	2,574,280	2,906,214	26,702,771
Metals unmanufactured or partly manufactured (a)	1908–12	859,907	2,550	185,496	239	56,685	1,309,458
	1913 ..	1,202,514	3,674	302,466	..	108,000	1,899,846
	1917–18	213,378	12	123	18,362	320,617	628,555
	1918–19	305,242	2	416	22,053	335,340	772,880
	1919–20	608,121	11	..	2,353	245,125	924,366
Manufactures of metals ..	1908–12	8,827,472	213,358	1,498,489	3,352	2,777,564	14,220,815
	1913 ..	12,027,377	211,610	1,902,154	7,601	3,680,720	19,152,660
	1917–18	3,187,295	10,405	11,037	285,854	5,313,096	9,698,970
	1918–19	6,325,224	12,200	3,010	524,280	8,509,002	16,095,544
	1919–20	11,907,307	34,020	4,059	142,200	8,101,993	21,573,114
Paper and stationery	1908–12	1,463,233	18,665	279,868	7,902	293,820	2,547,761
	1913 ..	1,789,577	21,930	266,483	10,656	403,679	3,134,750
	1917–18	990,444	36,256	291	85,020	879,076	3,003,538
	1918–19	1,293,255	57,196	1,380	177,871	2,442,333	5,543,880
	1919–20	1,299,747	70,700	146	85,439	1,287,938	4,156,626
Jewellery, timepieces, and fancy goods ..	1908–12	532,749	133,828	263,526	17,129	152,454	1,472,740
	1913 ..	506,608	85,430	250,846	19,102	136,965	1,410,555
	1917–18	244,232	73,738	481	185,624	226,615	1,065,492
	1918–19	303,948	139,792	263	258,312	319,656	1,600,868
	1919–20	630,605	182,095	12	122,684	258,840	2,029,268
Earthenware, cements, glass, etc.	1908–12	490,818	31,081	271,406	16,220	55,039	1,067,217
	1913 ..	650,867	40,188	457,810	21,493	62,895	1,568,531
	1917–18	234,742	3,506	207	333,937	181,098	780,210
	1918–19	367,472	1,886	138	476,007	587,569	1,467,886
	1919–20	517,992	5,647	7	328,809	251,907	1,239,685
Drugs, chemicals, fertilizers ..	1908–12	952,747	227,744	217,554	111,498	163,631	2,242,610
	1913 ..	1,020,141	245,413	303,447	139,106	205,123	2,715,127
	1917–18	1,174,544	186,153	1,313	584,996	696,950	3,358,003
	1918–19	1,530,004	316,008	501	519,327	1,284,492	4,425,073
	1919–20	1,357,429	377,518	63	111,340	876,931	3,648,755
Leather and manufactures thereof and substitutes therefor including indiarubber (excluding boots)	1908–12	472,166	59,356	221,768	1,581	324,991	1,338,033
	1913 ..	515,169	68,746	347,550	692	435,071	1,749,046
	1917–18	317,585	30,511	148	11,890	764,585	1,643,647
	1918–19	407,796	86,486	3	21,198	1,009,402	2,378,188
	1919–20	459,949	74,571	..	6,261	1,065,866	2,192,520
Total above-mentioned imports ..	1908–12	25,381,473	1,806,458	4,535,249	561,260	4,520,097	43,245,810
	1913 ..	31,161,439	1,983,864	5,744,587	683,437	5,946,441	54,084,764
	1917–18	19,783,587	1,162,131	15,406	4,049,280	10,518,256	44,359,445
	1918–19	31,511,447	1,592,390	5,753	6,833,712	18,818,527	71,265,376
	1919–20	33,835,771	2,280,557	4,373	3,397,867	15,425,282	65,235,003
Total imports (less bullion and specie)	1908–12	30,371,178	2,015,324	5,547,984	760,616	7,987,532	59,777,620
	1913 ..	40,948,803	2,222,631	7,029,325	950,300	10,907,512	78,196,109
	1917–18	22,030,579	1,219,270	18,055	4,977,085	15,453,665	60,675,683
	1918–19	34,563,860	1,651,833	6,556	8,203,725	27,180,656	94,867,459
	1919–20	38,514,975	2,422,304	6,848	4,222,511	23,824,255	98,914,143

(a) Mainly pig iron and bar and rod iron. Gold and silver bullion not included.

NOTE.—Figures for the years 1905–10 will be found in previous issues.

PERCENTAGE ON TOTAL COMMONWEALTH IMPORTS OF PRODUCTS OR MANUFACTURES OF THE UNITED KINGDOM, FRANCE, GERMANY, JAPAN, AND THE UNITED STATES OF AMERICA DURING THE YEARS 1908-12 TO 1919-20.

Nature of Imports.	Year.	United Kingdom.	France.	Germany.	Japan.	U.S. of America.	All Countries.
Foodstuffs of animal origin	1908-12	31.19	0.49	0.96	0.67	28.12	100
	1913 ..	31.77	0.33	12.74	0.74	30.52	100
	1917-18	0.61	0.01	..	2.77	48.23	100
	1918-19	4.48	0.02	..	3.93	35.02	100
	1919-20	2.14	0.12	..	0.93	29.41	100
Alcoholic liquors ..	1908-12	64.22	18.23	5.26	0.05	0.15	100
	1913 ..	63.04	17.64	7.37	0.09	0.14	100
	1917-18	78.12	8.07	..	0.02	2.05	100
	1918-19	76.14	5.22	..	0.08	1.25	100
	1919-20	71.93	16.76	0.00	0.07	1.02	100
Apparel (including boots), textiles, etc.	1908-12	63.23	4.95	9.08	2.30	2.72	100
	1913 ..	60.94	4.91	8.68	2.43	3.18	100
	1917-18	56.83	3.25	0.00	11.55	7.29	100
	1918-19	54.86	2.52	0.00	13.28	11.34	100
	1919-20	59.18	4.92	0.00	9.64	10.88	100
Metals unmanufactured or partly manufactured	1908-12	65.67	0.19	14.16	0.02	4.33	100
	1913 ..	63.29	0.19	15.92	..	5.69	100
	1917-18	33.95	0.00	0.02	2.92	51.01	100
	1918-19	39.49	0.00	0.54	2.85	43.39	100
	1919-20	65.79	0.00	..	0.25	26.52	100
Manufactures of metals ..	1908-12	62.07	1.50	10.54	0.02	19.53	100
	1913 ..	62.80	1.10	10.24	0.04	19.22	100
	1917-18	32.86	1.69	1.23	2.95	54.79	100
	1918-19	37.22	0.07	0.02	3.08	50.07	100
	1919-20	55.20	0.10	0.02	0.66	37.56	100
Paper and stationery	1908-12	57.43	0.73	10.98	0.31	11.53	100
	1913 ...	57.41	0.70	8.50	0.34	12.88	100
	1917-18	32.98	1.21	0.01	2.83	20.27	100
	1918-19	23.33	1.03	0.02	3.21	44.05	100
	1919-20	31.26	1.70	0.00	2.06	30.99	100
Jewellery, timepieces and fancy goods	1908-12	36.18	9.09	17.90	1.16	10.35	100
	1913 ..	35.02	6.06	17.77	1.36	9.71	100
	1917-18	22.92	6.92	0.05	17.42	21.27	100
	1918-19	18.99	8.73	0.02	16.14	19.97	100
	1919-20	31.08	8.97	0.00	6.05	12.76	100
Earthenware, cements, glass, etc.	1908-12	40.99	2.01	25.43	1.52	5.16	100
	1913 ..	41.49	2.56	29.19	1.37	4.01	100
	1917-18	30.09	0.45	0.03	42.80	23.33	100
	1918-19	26.40	0.13	0.01	32.43	40.03	100
	1919-20	41.78	0.46	0.00	26.52	20.32	100
Drugs, chemicals, and fertilizers ..	1908-12	42.48	10.16	9.70	4.97	7.30	100
	1913 ..	37.57	9.04	11.18	5.12	7.55	100
	1917-18	34.98	5.54	0.04	17.42	20.75	100
	1918-19	34.58	7.14	0.00	11.74	29.03	100
	1919-20	37.20	10.35	0.00	3.05	24.03	100
Leather and manufactures thereof, and substitutes therefor, including indiarubber (excluding boots)	1908-12	35.29	4.43	16.57	0.12	24.29	100
	1913 ..	29.45	3.93	19.87	0.04	24.88	100
	1917-18	*19.32*	*1.86*	*0.01*	*0.72*	*46.51*	*100*
	1918-19	20.96	3.64	0.00	0.89	42.53	100
	1919-20	20.93	3.40	0.00	0.29	48.61	100
Total above-mentioned articles	1908-12	58.69	4.18	10.49	1.30	10.45	100
	1913 ..	57.62	3.67	10.62	1.26	10.99	100
	1917-18	44.60	2.62	0.03	9.13	23.71	100
	1918-19	44.22	2.23	0.01	9.59	26.41	100
	1919-20	*51.87*	*3.50*	*0.07*	*5.19*	*23.65*	*100*
Total imports (less bullion and specie)	1908-12	50.81	3.37	9.23	1.27	13.36	100
	1913 ..	52.37	2.84	8.99	1.21	13.95	100
	1917-18	36.31	2.01	0.03	8.20	25.47	100
	1918-19	36.43	1.74	0.01	8.65	28.65	100
	1919-20	38.94	2.45	0.07	4.28	24.09	100

Apart from the decline of imports from the United Kingdom and the collapse of the trade with Belgium and Germany in consequence of the war, the most striking feature of the figures given above, perhaps, is the increased proportion of the trade which has fallen to the United States and to Japan. It may be mentioned here that the value of the imports from the United States and from Japan during the later years are somewhat understated, inasmuch as the values have been converted from the currencies of those countries on the basis of a par of exchange, whereas the actual exchange rates were considerably in their favour. The effect of this method of conversion, except in the case of Italy, did not reach serious dimensions until the year 1919–20. This method of conversion, which was applied to values for Customs duty also, was an advantage to Japan and to the United States in the Australian market by reducing the amount of duty to be paid on goods subject to *ad valorem* rates. In consequence of using the par of exchange, the figures given in the foregoing tables, though taken from the official records, are misleading. The commercial values of the imports referred to may be ascertained by multiplying the values given by the following co-efficients:—France, 0.58; Japan, 1.25; United States, 1.24; and from all countries by 1·07. The values of the imports from the United Kingdom, of course, require no alteration. Modified accordingly, the proportion of the competitive groups supplied by the United Kingdom during 1919–20 would be 48.47 per cent. instead of 51.87 per cent., and the share of France would be reduced from 3.50 per cent. to 1.89 per cent. On the other hand, the proportion from Japan would be raised from 5.19 to 6.06 per cent. and the proportion from the United States from 23.65 to 27.40 per cent. These proportions show an improvement in the position of the United Kingdom as compared with 1918–19 from 44.22 per cent. to 48.47 per cent., and also a small improvement on the part of the United States, while the position of Japan has fallen from 9.59 per cent. to 6.06; and that of France from 2.23 per cent. to 1.89 per cent. In the latest pre-war year (1913), the share of the United States in the "competitive" groups was £5,946,441, or 10.99 per cent., whereas in 1919–20 it was £15,425,282, or 23.65 per cent. The following are some of the principal lines in which United States' sales to Australia during 1919–20 were increased over those of 1913, and the amount of such increases:—Apparel and textiles, £2,278,000; iron and steel unmanufactured or partly manufactured, £121,442; manufactured metals and machinery (including vehicles), £4,425,612; glass and glassware, £159,530; indiarubber and manufactures thereof, £393,761; leather and manufactures of (excluding boots and shoes), £239,901; paper and stationery, £884,259; fancy goods, £42,958; jewellery, £28,504; drugs and chemicals, £678,922; ammunition and explosives, £179,382; brushware, £27,313; electrical materials, £134,426; pianos and parts thereof, £270,202; paints and varnishes, £69,696; talking machines, £103,475; yarns, £26,631.

Although the value of the imports of competitive goods from Japan is much less than from America, the rate of increase has been far greater—from £683,437 in 1913 to £3,387,867 in 1919–20, equal to 400 per cent. The classes of goods chiefly responsible for this increase and the amount of the increase due to each are as follows:—Apparel and textiles, £2,092,590; metal manufactures and machinery, £136,952; china and porcelain ware, £122,203; earthenware, £18,627; glass and glassware, £165,033; paper, £54,212; stationery, £20,571; fancy goods, £99,275; optical, surgical, and scientific instruments, £11,330; brushware, £38,451; matches, £46,409; electric cable and wire, covered, £51,065; leather and rubber manufactures, £5,569.

2. Preferential Tariff.—The Tariff Act of 1908 provided preferential tariff rates in favour of goods produced or manufactured in the United Kingdom. Subsequent amendments of the Tariff have extended the list of articles to which the preferential rates apply. In the schedule submitted to Parliament on the 3rd December, 1914, the extension of the number of preferential rates was very material, and was accompanied in many instances by an increase of the margin in favour of the United Kingdom.

This favorable treatment of the United Kingdom was again extended in both directions by the Tariff of the 25th March, 1920, which also included a new feature of Australian

Tariffs in the form of an Intermediate Tariff. In submitting the schedule to Parliament, the Minister for Trade and Customs made the following statement of the object of the Intermediate Tariff:—" . . . . the Minister is empowered under the Bill to enter into reciprocal arrangements with other Dominions of the British Crown. The Minister will be able, if we can arrange a satisfactory reciprocal agreement, to extend to other Dominions on individual items the British preference rate, or the intermediate rate, or, it may be, the general rate. Such agreements will be subject to the ratification of Parliament. The provision simply means that if any of our sister self-governing Dominions desires to enter into reciprocal trade relationships with us, the Minister, with the British Preference Tariff, the Intermediate Tariff, and the General Tariff before him, may bargain with the sister Dominion and come to an agreement, which, as I say, must subsequently be ratified by Parliament. . . . . There is a provision of a somewhat similar character in regard to other countries than the Dominions, the only difference being that the Minister is empowered to extend to countries other than the Dominions only the Intermediate Tariff; that is to say, in entering into such negotiations, he is precluded from offering to those countries what we might term, for the purposes of this Bill, the Empire rate. He is confined in his negotiations with these other countries to the Intermediate Tariff."

Hitherto the Union of South Africa has been the only British Dominion with which the Commonwealth has had a reciprocal tariff arrangement. The Commonwealth Customs Tariff (South African Preference) Act, No. 17 of 1906, and subsequent amending Acts have provided preferential rates of duty to be applied to certain imported goods "when those goods are imported from and are the produce or manufacture of any of the British South African Colonies or Protectorates which are included within the South African Customs Union."

On the introduction of the preferential treatment of British goods, it was required that British material or labour should represent not less than one-fourth the value of such goods. From the 1st September, 1911, it has been required, in regard to goods only partially manufactured in the United Kingdom, that the final process or processes of manufacture shall have been performed in the United Kingdom, and that the expenditure in material of British production and/or British labour shall have been not less than one-fourth of the factory or works' cost of the goods in the finished state.

Number 8 and previous editions of this Year Book contained exhaustive analyses of the imports into the Commonwealth, for the purpose of measuring the effect of the preferential treatment of British goods. The method adopted was to contrast the relative proportion of the trade supplied by the United Kingdom in respect to goods subject to Preferential Tariff rates with the proportion of goods of the same class supplied in unrestricted competition under the General Tariff. The most satisfactory data for the purpose were furnished by two classes of goods, viz., "Apparel and Textiles" and "Machinery and Manufactures of Metals." Under the existing Tariff, preferential treatment has been so extended as to cover practically all goods of these classes, and consequently the basis of comparison no longer exists. Prior to the Tariff of 1914, approximately one-half of all imports and about 60 per cent. of imports from the United Kingdom were affected by the Preferential Tariff, whereas under the Tariff of 1914 nearly 80 per cent. of all imports, and about 90 per cent. of imports of United Kingdom origin were so affected.

3. Preferential Tariffs of the British Empire.—In the Official Year Book No. 11, pages 601-3, will be found an outline of the systems of Preferential Tariffs within the British Empire and the Tariff arrangements between British Dominions or Colonies and Foreign Countries, together with a list of countries with whom Great Britain had concluded commercial treaties for "Most-Favoured-Nation" treatment.

§ 14. Rates of Duty in Australia and other Countries.

The following table shews the proportion of the total imports of merchandise entered for "home consumption" free of duty, in the undermentioned countries, and also the equivalent *ad valorem* rates of duty charged :—

PROPORTION OF FREE GOODS AND RATES OF IMPORT DUTY.

Particulars.	Australia.			Canada. (a)	New Zealand. (e)	U.S. of America.
Year ended	31/12/06	31/12/13	30/6/20	31/3/20	31/12/20	30/12/19
Percentage of free merchandise ..	35.18	42.30	37.24	34.84	48.00	70.84
Equivalent *ad val.* rates of duty on—	%	%	%	%	%	%
Spirits, wines and malt liquors ..	153.23	136.62	89.51	52.01	54.13	50.79
Tobacco, and preparations thereof ..	168.05	133.70	58.26	5.54*b*	57.39	47.05*d*
Other dutiable merchandise ..	17.04	20.92	18.31	22.02	18.97	19.65
Other merchandise dutiable and free	10.75	11.72	11.15	14.46	9.16	5.54
Total dutiable merchandise ..	27.14	26.47	22.43	22.51	23.33	21.27
Total merchandise dutiable and free	17.59	16.42	14.08	14.67	11.99	6.20
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Customs duty per head	1 15 10	2 12 8	2 12 8	4 4 6	6 5 1*c*	0 10 8

(*a*) Excluding war tax, £6,445,742. (*b*) Unmanufactured tobacco is admitted to Canada free of duty. (*c*) Exclusive of Maoris, and residents of Cook and other Pacific Islands. (*d*) Tobacco is admitted free of Customs duty from the Philippine Islands. *e* Excluding Primage, £573,792.

The figures given for the year ended 30th June, 1906, represent the results of the last full year of operation of the tariff of 1902.

From the results given in the above table, it will be seen that the scheme of taxation, by means of import duties, varies materially between the countries named. In Australia and Canada, taxation is spread more widely over imported commodities than in New Zealand or the United States of America. In the latter country, 70.84 per cent. of all imports are free of duty, whereas in the Commonwealth, about 37 per cent. only of the total imports were exempt from taxation during the year 1919–20. A considerable restriction of the free list in this country was necessary to raise the revenue required by the exigencies of the war, though even prior to the war (in 1913) free goods represented only 42.30 per cent. of the total imports, while in New Zealand they comprised 52 per cent. and in the United States of America, 60 per cent.

The comparatively large percentage of free goods in the imports of 1913 was not entirely the effect of Tariff changes, but was in some measure due to the inclusion in the free imports of that year of warships to the value of £2,495,000 and of mercantile ships to the value of £1,500,000. Imports of ships to such a value in any one year are, of course, unusual.

The relatively low average *ad valorem* rate of duty collected in the Commonwealth in 1919–20 was due to higher prices of goods subject to specific rates. For instance, in 1913 a duty of 14s. per gallon represented an *ad valorem* equivalent of 215 per cent. on a gallon of bulk whisky valued at 6s. 6d. per gallon, whereas in 1919–20 the higher duty of 25s. per gallon represented only 93 per cent. on a cost of 26s. 10d. per gallon.

VALUE OF GOODS (EXCLUDING BULLION AND SPECIE) ENTERED FOR CONSUMPTION IN THE COMMONWEALTH, AND DUTY COLLECTED THEREON, 1919-20.

Classification of Imports.	Value Entered for Consumption.			Duty Collected, less Refunds.	Equivalent *ad valorem* Rate per cent. on—	
	Dutiable.	Free (Net Imports).	Total.		Dutiable Imports.	All Imports.
	£	£	£	£	%	%
I. Foodstuffs of animal origin, but excluding living animals ..	1,277,502	113,861	1,391,363	175,768	13.76	12.63
II. Foodstuffs of vegetable origin	2,344,792	4,594,268*a*	6,939,060	339,014	14.48	4.89
III. Beverages (non-alcoholic) and substances used in making	433,585	3,878,374	4,311,959	56,057	12.93	1.30
IV. Spirituous and alcoholic liquors	2,031,252	..	2,031,252	1,818,250	89.51	89.51
V. Tobacco and preparations thereof	2,729,395	..	2,729,395	1,590,161	58.26	58.26
VI. Live animals	35,975	76,331	112,306	79	0.22	0.07
VII. Animal substances (mainly unmanufactured) not foodstuffs	71,246	1,641,871	1,713,117	7,153	10.04	0.42
VIII. Vegetable substances and fibres	527,945	2,583,866	3,111,811	73,926	14.00	2.38
IX. (*a*) Apparel, (*b*) textiles, and (*c*) manufactured fibres ..	15,687,876	10,482,729	26,170,605	3,644,456	23.23	13.93
X. Oils, fats, and waxes ..	4,059,121	777,225	4,836,346	290,328	7.15	6.00
XI. Paints and varnishes ..	440,768	20,683	461,451	66,449	15.08	14.40
XII. Stones and minerals used industrially	111,430	78,807	190,237	23,043	20.68	12.11
XIII. Ores and metals unmanufactured or partly manufactured	410,657	474,659	885,316	29,793	7.25	3.37
XIV. (*a*) Machines and machinery, (*b*) other manufactures of metal	16,193,602	5,557,693	21,751,295	2,739,852	16.92	12.60
XV. (*a*) Indiarubber and indiarubber manufactures, (*b*) leather and manufactures of leather and substitutes therefor ..	1,794,939	376,960	2,171,899	528,601	29.45	24.34
XVI. Wood and wicker, raw and manufactured	3,006,205	93,920	3,100,125	277,512	9.23	8.95
XVII. Earthenware, cements, china, glass, and stoneware ..	1,214,383	40,523	1,254,906	245,387	20.21	19.55
XVIII. (*a*) Paper, and (*b*) stationery	3,201,711	1,009,154	4,210,865	471,912	14.74	11.21
XIX. Jewellery, timepieces, and fancy goods	1,157,307	817,797	1,975,104	372,651	32.20	18.87
XX. Optical, surgical, and scientific instruments	573,749	377,579	951,328	140,893	24.56	14.81
XXI. Drugs, chemicals, and fertilizers	2,213,346	1,456,121	3,669,467	361,148	16.32	9.84
XXII. Miscellaneous	2,038,928	2,070,736	4,109,664	555,826	27.26	13.52
Total merchandise ..	61,555,714	36,523,157	98,078,871	13,808,865	22.43	14.08
Merchandise, excluding stimulants and narcotics ..	56,795,067	36,523,157	93,318,224	10,400,448	18.31	11.15

(*a*) Includes Sugar valued at £4,280,000 imported by the Commonwealth Government.

SECTION XVI.

SHIPPING.

§ 1. General.

NOTE.—Owing to the general disorganization of shipping in consequence of the war, the figures relating to the war period given in the following tables are of little comparative significance.

1. **Record of Shipping before Federation.**—Prior to Federation it was customary for each State to regard the matter of shipping purely from the State standpoint, and vessels arriving from or departing to countries beyond Australia, *via* other Australian States, were recorded as if direct from or to the oversea country. Thus, a mail steamer from the United Kingdom, which made Fremantle her first port of call in Australia, would be recorded not only there, but again in Adelaide, Melbourne, and Sydney, as an arrival from the United Kingdom. Consequently, any aggregation of the shipping records of the different States would repeatedly include a large proportion of the shipping visiting Australia. In earlier years, when many vessels sailed from the various State ports direct for their destination, the error of repeated inclusion was less serious, but as the commerce of Australia developed, more and more ports of call were included in the voyage of each vessel, and the mere aggregation of State records hence became correspondingly misleading. Failure to recognise this was at times responsible for erroneous deductions from the statistical records as then compiled.

2. **Shipping since Federation.**—With the inauguration of the Commonwealth, the statistics of its shipping, especially of its oversea shipping, became of greater intrinsic importance. As an index of the position of Australia amongst the trading countries of the world, such statistics had a constitutional importance commensurate with Commonwealth interests, and correspondingly greater than those of individual States, and the nationality of the shipping trading with Australia became also a matter of greater moment.

3. **Difficulties of Comparisons of Total Shipping.**—From what is said in sub-section 1 above, it is obviously impossible to obtain results for Australia for pre-federal years not subject to the defect of repeated inclusions of the same vessels. Unfortunately, the statistical records of the first three years of Federal history are also subject to the same defect, and do not admit of direct comparison with those now kept. A careful estimate of the extent and effect of repeated inclusion has, however, been made and applied to the records of the earlier years, so as to extend the comparative results to those years. The error of such estimation will be negligible for comparative purposes.

4. **Present System of Record.**—The present system of record treats Australia as a unit, and counts, therefore, only one entry and one clearance for each visit to the Commonwealth. Repeated voyages of any vessel are, of course, included.

On arrival of every vessel at a port in the Commonwealth, whether from an oversea country or from another port within the Commonwealth, the master is required to deliver to the Customs officer a form giving all particulars necessary for statistical purposes in regard to the ship, passengers, and crew. Similarly, on departure from a port, a form

containing corresponding information is lodged. These forms, which provide a complete record of the movements of every vessel in Commonwealth waters, are at the end of each month forwarded by the Customs officer at each port to the Commonwealth Bureau of Statistics, and furnish the material for the compilation of the Shipping and Migration Returns.

Under the system previously in force it was found that the estimates of population, in so far as they were based on seaward movement, were very unsatisfactory, and it is believed that the method referred to above gives decidedly better results.

From the 1st July, 1914, the statistical year for the record of Trade and Shipping of the Commonwealth was altered from the calendar year to agree with the fiscal year.

In all instances the tonnage quoted is the net tonnage.

§ 2. Oversea Shipping.

1. **Total Oversea Shipping.**—In order to extend, as indicated, the comparison of the oversea shipping to the earliest years for which any records are available, an estimate of its probable amount has been made. This estimate is based on a comparison of the results obtained by merely aggregating State statistics, with the defect of multiple records, and the results obtained under the present system, which avoids the multiple record. From the nature of the case it is obvious that the ratio of repeated inclusion to the total traffic has been continually advancing, and this fact has been duly taken into account in deducing the results in the following table :—

TOTAL OVERSEA SHIPPING ENTERED AND CLEARED THE COMMONWEALTH, 1822 TO 1919–20 (MULTIPLE RECORD EXCLUDED BY ESTIMATION PRIOR TO 1904).

Year.	Vessels.	Tons.	Year.	Vessels.	Tons.	Year.	Vessels.	Tons.
1822 ..	73	30,683	1855 ..	3,239	1,449,657	1888 ..	3,933	4,464,895
1823 ..	76	30,543	1856 ..	2,669	1,195,794	1889 ..	3,897	4,460,426
1824 ..	71	29,029	1857 ..	2,842	1,530,202	1890 ..	3,363	4,150,027
1825 ..	80	30,786	1858 ..	2,607	1,378,050	1891 ..	3,778	4,726,307
1826 ..	65	23,587	1859 ..	2,759	1,403,210	1892 ..	3,432	4,239,500
1827 ..	95	29,301	1860 ..	2,464	1,288,518	1893 ..	3,046	4,150,433
1828 ..	124	38,367	1861 ..	2,466	1,149,476	1894 ..	3,397	4,487,546
1829 ..	185	56,735	1862 ..	2,917	1,389,231	1895 ..	3,331	4,567,883
1830 ..	195	56,185	1863 ..	3,378	1,564,369	1896 ..	3,309	4,631,266
1831 ..	185	52,414	1864 ..	3,344	1,537,433	1897 ..	3,279	4,709,697
1832 ..	206	59,628	1865 ..	3,005	1,317,934	1898 ..	3,222	4,681,398
1833 ..	241	72,847	1866 ..	3,378	1,470,728	1899 ..	3,356	5,244,197
1834 ..	249	77,068	1867 ..	2,927	1,277,679	1900 ..	3,719	5,894,173
1835 ..	310	96,028	1868 ..	3,080	1,350,573	1901 ..	4,028	6,541,991
1836 ..	310	93,974	1869 ..	3,107	1,472,837	1902 ..	3,608	6,234,460
1837 ..	442	113,432	1870 ..	2,877	1,381,878	1903 ..	3,441	6,027,848
1838 ..	471	132,038	1871 ..	2,748	1,312,642	1904 ..	3,700	6,682,011
1839 ..	652	191,507	1872 ..	2,788	1,380,466	1905 ..	4,088	7,444,417
1840 ..	915	277,395	1873 ..	3,159	1,609,067	1906 ..	4,155	7,966,658
1841 ..	900	278,738	1874 ..	3,153	1,728,269	1907 ..	4,394	8,822,866
1842 ..	862	252,827	1875 ..	3,437	1,914,482	1908 ..	4,051	8,581,151
1843 ..	736	183,427	1876 ..	3,295	1,863,343	1909 ..	3,910	8,516,751
1844 ..	629	155,654	1877 ..	3,157	1,930,434	1910 ..	4,048	9,333,146
1845 ..	735	164,221	1878 ..	3,372	2,127,518	1911 ..	4,174	9,984,801
1846 ..	888	211,193	1879 ..	3,344	2,151,338	1912 ..	4,052	10,275,314
1847 ..	1,033	245,358	1880 ..	3,078	2,177,877	1913 ..	3,985	10,601,948
1848 ..	1,182	305,840	1881 ..	3,354	2,549,364	1914–15	3,211	8,399,258
1849 ..	1,137	355,886	1882 ..	3,652	3,010,944	1915–16	3,324	8,538,322
1850 ..	1,300	425,206	1883 ..	3,857	3,433,102	1916–17	2,986	7,694,442
1851 ..	1,576	515,061	1884 ..	4,315	4,064,947	1917–18	2,197	5,031,750
1852 ..	1,896	844,243	1885 ..	4,052	3,999,917	1918–19	2,614	6,180,466
1853 ..	3,364	1,490,422	1886 ..	3,793	3,853,246	1919–20	2,981	8,066,507
1854 ..	3,781	1,744,251	1887 ..	3,454	3,764,430			

It must be borne in mind that while the above figures in themselves have no absolute significance, nevertheless, on the assumption that the element of duplication has been in fairly constant ratio, they furnish the best available indication of the growth of Australian oversea shipping.

2. *Comparison with other Countries.*—The place of Australia among various countries in regard to oversea shipping is indicated in the following table, both absolutely and in respect of tonnage per head of population.

OVERSEA SHIPPING OF VARIOUS COUNTRIES.

Country.	Year.	Tonnage Entered and Cleared. Total.	Per Inhabitant.
Argentine Republic	1918	6,788,000	0.8
Belgium	1919	9,077,616	1.2
Canada	1919	25,261,393*a*	2.8
Commonwealth	**1919–20**	**8,086,507**	**1.5**
Denmark	1919	6,708,027	2.2
France	1919	45,668,000	1.2
Germany	1912	51,065,940	0.8
Italy	1919	48,237,126	1.3
Japan	1919	45,943,777	0.6
New Zealand	1920	4,038,625	3.4
Norway	1919	6,095,612	2.3
Sweden	1918	16,006,630	2.7
Union of South Africa	1919–20	7,233,000	1.2
United Kingdom	1920	73,108,000*b*	1.7
United States	1919	74,086,573*a*	0.7

(*a*) Exclusive of vessels trading on lakes and rivers between Canada and the United States.
(*b*) With cargoes only.

3. **Shipping Communication with various Countries.**—In previous issues of this Year Book tables were published shewing the number and tonnage of ships recorded as arriving from and departing to particular countries. At the same time it was shewn that such records were of no significance, for the reason that the tonnage of a vessel can be recorded against one country only, notwithstanding that the same vessel may carry cargo or passengers to or from Australia for several countries on the same voyage. For instance, a mail steamer on a voyage from Europe to Australia, through the Suez Canal, may call at Antwerp, Bremerhaven, London, Marseilles, Genoa, Port Said, Aden and Colombo, yet can be credited only to one of these ports, to the exclusion of all the other ports from the records. Perhaps a more striking example of the ineffectiveness of the records referred to is afforded by the recorded statistics of the shipping between South Africa and Australia. The advertised sailings from Australia to the United Kingdom via South African ports for the month of October, 1921, represent a net tonnage of 40,145, yet the statistical records will shew none of this tonnage as to South Africa, but all will be shewn as to the United Kingdom. In view of this defect it has been decided to discontinue the publication of the figures purporting to shew the shipping communication with particular countries, and to restrict the statistics relating to the direction of the shipping to and from Australia to the following tables in which countries situated on the main trade routes are grouped together.

4. **General Trend of Shipping.**—A grouping of countries into larger geographical divisions, as in the following tables, shews more readily the general direction of Australian shipping, and, to some extent, avoids the limitations of the records in relation to particular countries, by covering more closely the main trade routes. The figures relating to Africa, however, are still subject to the limitations referred to in the previous paragraph.

GENERAL DIRECTION OF THE SHIPPING OF THE COMMONWEALTH, 1904 TO 1919-20.

* TONNAGE ENTERED.

Countries.	—	Annual Average. 1904-8.	Annual Average. 1909-13.	1917-18.	1918-19.	1919-20.
United Kingdom and European Countries	Cargo	1,343,869	1,930,579	436,867	607,680	982,237
	Ballast	92,372	88,072	188,347	348,719	477,183
New Zealand	Cargo	530,683	674,709	394,986	303,027	411,819
	Ballast	142,521	161,450	76,248	98,891	173,601
Asiatic Countries and Islands in the Pacific	Cargo	459,612	727,817	641,756	619,174	682,592
	Ballast	355,196	147,919	62,419	296,264	538,630
Africa	Cargo	31,852	29,233	80,574	107,607	50,982
	Ballast	280,168	289,991	85,280	254,878	254,527
North and Central America	Cargo	378,147	488,737	440,889	490,592	454,830
	Ballast	98,628	36,693	..	14,895	3,642
South America	Cargo	3,861	17,834	5,703	1,179	11,501
	Ballast	248,826	207,300	43,708	5,454	..
	Cargo	2,748,024	3,877,999	2,000,775	2,220,159	2,593,961
	Ballast	1,217,711	1,021,425	455,982	1,018,901	1,447,583
Total	..	3,965,735	4,899,424	2,456,757	3,239,060	4,041,544

TONNAGE CLEARED.

Countries.	—	Annual Average. 1904-8.	Annual Average. 1909-13.	1917-18.	1918-19.	1919-20.
United Kingdom and European Countries	Cargo	1,397,060	2,010,192	884,418	1,122,890	1,925,711
	Ballast	3,223	41	34,444	33,446	12,547
New Zealand	Cargo	701,987	1,004,924	427,512	373,058	596,367
	Ballast	57,751	51,552	10,776	25,230	23,167
Asiatic Countries and Islands in the Pacific	Cargo	808,409	922,035	606,504	672,306	844,879
	Ballast	37,300	51,922	34,878	43,618	30,129
Africa	Cargo	149,462	112,918	198,806	387,550	320,721
	Ballast	2,421	78	4,463	7,270	4,789
North and Central America	Cargo	243,618	195,497	332,000	235,228	224,358
	Ballast	40,692	32,849	2,976	5,791	17,068
South America	Cargo	482,774	455,136	88,216	33,709	45,237
	Ballast	8,079	5,824	..	1,330	..
	Cargo	3,784,210	4,700,702	2,487,456	2,824,741	3,957,273
	Ballast	149,475	142,266	87,537	116,685	87,690
Total	..	3,933,685	4,842,968	2,574,993	2,941,426	4,044,963

TONNAGE ENTERED AND CLEARED.

Countries.	Annual Average. 1904-8.	Annual Average. 1909-13.	1917-18.	1918-19.	1919-20.
United Kingdom and European Countries	2,837,424	4,037,884	1,544,076	2,112,735	3,397,678
New Zealand	1,432,942	1,892,725	909,522	890,906	1,204,944
Asiatic Countries and Islands in the Pacific	1,660,526	1,849,693	1,345,557	1,631,362	2,096,230
Africa	463,903	432,220	369,103	757,305	631,019
North and Central America	761,085	753,776	775,865	746,506	699,898
South America	743,540	776,094	87,627	41,672	56,738
Cargo	6,532,234	8,578,701	4,488,231	5,044,900	6,551,234
Ballast	1,367,186	1,163,691	543,519	1,135,586	1,535,273
Total	7,899,420	9,742,392	5,031,750	6,180,486	8,086,507

5. Nationality of Oversea Shipping.—As will be seen from the following table, the greater part of the shipping visiting the Commonwealth is of British nationality. The proportion which British shipping represented of the total tonnage which entered and cleared the Commonwealth has risen, mainly by reason of the withdrawal of German ships, from 73.53 per cent. during the years 1909–13 to 77.93 per cent. in 1919–20, though the actual amount of British tonnage engaged fell by 12.03 per cent. during the same period. On the other hand Japanese tonnage increased from 160,580 tons to 613,536 tons (282 per cent.), and United States tonnage from 83,892 tons to 376,530 (349 per cent.). From the table given on page 541 it will be seen that the Japanese and American tonnage was, during 1919–20, engaged for the most part between its home ports and the Commonwealth.

NATIONALITY OF ALL VESSELS WHICH ENTERED AND CLEARED THE COMMONWEALTH FROM AND TO OVERSEA COUNTRIES, 1904 TO 1919–20.

Nationality.	Tonnage.				
	Annual Average.		1917–18.	1918–19.	1919–20.
	1904–8.	1909–13.			
BRITISH—					
Australian	608,432	810,482	967,178	855,941	792,066
United Kingdom ..	4,406,092	5,224,923	2,501,028	3,725,351	5,122,451
New Zealand	788,614	1,097,384	229,271	254,575	300,189
Other British	17,330	31,476	80,342	40,775	87,291
Cargo.. ..	4,952,083	6,448,777	3,386,991	3,896,477	5,195,055
Ballast ..	868,385	715,488	390,828	980,165	1,106,942
Total British ..	5,820,468	7,164,265	3,777,819	4,876,642	6,301,997
Per cent. on total ..	73 68	73.53	75.08	78.90	77.93
FOREIGN—					
Austro-Hungarian ..	5,909	18,337	..	..	..
Danish	14,135	7,816	40,137	15,407	15,254
Dutch	28,149	148,112	150,448	131,627	147,189
French	474.312	432,891	305,123	138.064	349,804
German	745,862	1,028,630	..	..	..
Italian	106,944	70,582	17,176	30,459	120,044
Japanese	47,280	160.580	252,614	331,872	613,536
Norwegian	359,622	500,950	106,865	174,825	94,184
Russian	46,295	51,248	15,893	43,973	..
Swedish	29,731	49,642	41,641	64,158	43,125
United States	207,438	83,892	311,753	344,795	376,530
Other Foreign	13,275	25,447	12,281	28,574	24,844
Cargo.. ..	1,580,151	2,129.923	1,101,240	1,148,423	1,356,179
Ballast ..	498,801	448,204	152,691	155,421	428,331
Total Foreign ..	2,078,952	2,578,127	1,253,931	1,303,844	1,784,510
Per cent. on total ..	26.32	26.47	24.92	21.10	22.07
Cargo.. ..	6,532,234	8,578,700	4,488,231	5,044,900	6,551,234
Per cent. on total	82.68	88.04	89.20	81.63	81.01
Ballast ..	1,367,186	1,163,692	543,519	1,135,586	1,535,273
Per cent. on total	17.32	11.96	10.80	18.37	18.99
Grand Total ..	7,899,420	9,742,392	5,031,750	6,180,486	8,086,507

During the years 1904–8 the Australian tonnage engaged in the oversea trade represented 7.70 per cent. of the total tonnage which entered and cleared the Commonwealth. In the following quinquennial period the proportion of Australian tonnage was 8.32 per cent. and in 1918–19, by reason of the diversion to the oversea trade of Australian ships usually engaged in the coastal trade, it rose to 13.85 per cent., but declined to 9.79 per cent. in 1920.

The relative proportion of British and foreign tonnage which entered and cleared the Commonwealth during the last fifteen years, apart from tonnage in ballast, is given below. From these figures, which may be considered to indicate more closely the proportion of the actual carrying trade done than does the total tonnage, it will be seen that the proportion of foreign tonnage declined materially in the earlier years of the war owing to the complete withdrawal of ships under the German and Austrian flags and to the greatly reduced tonnage of French and Norwegian ships which were precluded from following their usual employment. During the year 1917–18 the proportion of foreign shipping, in consequence of the activities of Japanese and United States ship-owners, almost attained its pre-war dimensions, but during the last two years under review the proportion of British ships to the total tonnage carrying cargo was greater than in the pre-war years.

PROPORTION OF TONNAGE OF BRITISH AND FOREIGN NATIONALITY ENTERED AND CLEARED THE COMMONWEALTH WITH CARGO, 1904 TO 1919–20.

Nationality.	Annual Average.		1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	1904–8.	1909–13.					
British	75.80	75.18	82.26	82.20	75.46	77.24	79.30
Foreign	24.20	24.82	17.74	17.80	24.54	22.76	20.70
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00

It is of interest to observe that, as already pointed out in connexion with American and Japanese shipping, most of the foreign tonnage which enters the Commonwealth is employed between its home ports or the colonies of its own country and the Commonwealth, *e.g.*, French shipping is engaged chiefly between the Commonwealth, France and New Caledonia, while Dutch ships are employed almost entirely between the Commonwealth and the Dutch East Indies. Norwegian shipping is an exception to this rule. The greater part of Norwegian tonnage engaged in trade with Australia is composed of vessels operating under charters. Of the 39,760 tons of Norwegian shipping which entered the Commonwealth during 1919–20, 26,570 tons (66.82 per cent.) were in ballast, and 54,910 tons (58.42 per cent.) arrived from the United States of America.

The following table shews the direction of the activities of the principal foreign countries engaged in the oversea carrying trade of the Commonwealth. It will be noticed that the greater part of the Japanese and French tonnage which entered the Commonwealth during 1919–20 was in ballast. In the case of French vessels the tonnage in ballast represented as much as 86 per cent. A similar analysis with regard to German ships will be found in previous issues.

SHIPPING OF PRINCIPAL FOREIGN NATIONS BETWEEN AUSTRALIA AND OTHER COUNTRIES DURING 1919-20.

Countries.	Nationality.					
	Japanese.		French.		United States.	
	Entered.	Cleared.	Entered.	Cleared.	Entered.	Cleared.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
EUROPEAN COUNTRIES—						
United Kingdom ..	..	..	..	..	1,105	8,219
France	3,459	..	81,935	110,265	..	4,306
Other European Countries..	..	2,613	15,461	..	..	..
NEW ZEALAND	7,711	9,716	..	..	6,010	9,716
ASIATIC COUNTRIES AND ISLANDS IN THE PACIFIC—						
Dutch East Indies ..	9,415	20,633	36,027	..	..	..
Japan	191,249	201,937	..	..	..	..
New Caledonia	..	..	25,501	30,602	4,306	570
Other Pacific Islands ..	35,471	16,909	5,966	900	18,318	43,097
Straits Settlements ..	51,406	43,621	4,203	..	..	..
Other Asiatic Countries ..	6,572	5,945	..	4,206	..	..
AFRICAN COUNTRIES ..	2,613	4,266	10,776*a*	21,932*a*	2,804	..
NORTH AMERICAN COUNTRIES—						
United States	..	..	2,030	..	156,197	107,333
Other N. American Countries	..	..	..	..	4,065	..
SOUTH AMERICAN COUNTRIES—						
Chile	..	..	..	..	..	2,092
Peru	..	..	..	..	..	8,392
With Cargo ..	128,638	303,658	61,843	163,076	176,989	167,131
In Ballast ..	179,258	1,982	120,056	4,829	15,816	16,594
Total	307,896	305,640	181,899	167,905	192,805	183,725

(*a*) Egypt.

A further analysis is appended, distinguishing between steam and sailing vessels of British and foreign nationality, which entered and cleared the Commonwealth during the years 1904 to 1919–20.

STEAM AND SAILING VESSELS ENTERED AND CLEARED, 1904 TO 1919-20.

Description and Nationality of Vessels.	Annual Average.				1917–18.		1918–19.		1919–20.	
	1904–8.		1909–13.							
	Tonnage.	Percentage.	Tonnage.	Percentage.	Tonnage.	Percentage.	Tonnage.	Percentage.	Tonnage.	Percentage.
Steam—										
British ..	4,773,674	82	6,677,412	80	3,600,197	82	4,717,362	85	6,219,048	81
Foreign ..	1,055,015	18	1,690,773	20	771,304	18	826,041	15	1,450,957	19
Total Steam..	5,828,689	100 (74)	8,368,185	100 (86)	4,371,501	100 (87)	5,543,403	100 (90)	7,670,005	100 (95)
Sailing—										
British ..	1,046,794	51	486,853	35	177,622	27	159,280	25	82,949	20
Foreign ..	1,023,938	49	887,354	65	482,627	73	477,803	75	333,553	80
Total Sailing .	2,070,732	100 (26)	1,374,207	100 (14)	660,249	100 (13)	637,083	100 (10)	416,502	100 (5)
Steam and Sailing—										
British ..	5,820,468	74	7,164,265	74	3,777,819	75	4,876,642	79	6,301,997	78
Foreign ..	2,078,953	26	2,578,127	26	1,253,931	25	1,303,844	21	1,784,510	22
Total ..	7,899,421	100	9,742,392	100	5,031,750	100	6,180,486	100	8,086,507	100

6. **Tonnage in Ballast.**—The following table shews the tonnage of oversea vessels which entered and cleared the Commonwealth in ballast during the years 1904 to 1919–20 :—

TONNAGE ENTERED AND CLEARED IN BALLAST, 1904 TO 1919–20.

Year.	Entered.			Cleared.		
	British.	Foreign.	Total.	British.	Foreign.	Total.
1904–8(a) ..	785,396	432,315	1,217,711	82,990	66,486	149,476
1909–13(a) ..	632,751	388,675	1,021,426	82,737	59,529	142,266
1914–15 ..	441,908	129,305	571,213	238,314	108,401	346,715
1915–16 ..	595,591	49,153	644,744	196,033	172,746	368,779
1916–17 ..	720,040	151,728	871,768	104,078	90,172	194,250
1917–18 ..	322,807	133,175	455,982	68,021	19,516	87,537
1918–19 ..	886,494	132,407	1,018,901	93,671	23,014	116,685
1919–20 ..	1,046,921	400,662	1,447,583	60,021	27,669	87,690

(a) Annual average.

PROPORTION OF TOTAL BRITISH AND FOREIGN TONNAGE WHICH ENTERED AND CLEARED IN BALLAST, 1904 TO 1919–20.

Year.	Entered.			Cleared.		
	British.	Foreign.	Total.	British.	Foreign.	Total.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
1904–8(a) ..	26.51	41.08	30.36	2.86	6.05	3.71
1909–13(a) ..	17.67	30.50	21.06	2.36	4.93	3.03
1914–15 ..	12.88	17.36	13.68	6.51	14.12	7.84
1915–16 ..	17.02	6.38	15.10	5.63	21.95	8.64
1916–17 ..	22.95	21.25	22.64	3.32	12.75	5.05
1917–18 ..	17.05	21.23	18.56	3.49	3.11	3.40
1918–19 ..	34.55	19.68	31.46	4.05	3.65	3.97
1919–20 ..	35.57	36.49	35.82	1.97	2.78	2.17

(a) Annual average.

The tonnage which entered each State of the Commonwealth in ballast, during 1919–20, was as follows :—

TONNAGE OF OVERSEA VESSELS IN BALLAST WHICH ENTERED EACH STATE AND THE NORTHERN TERRITORY DURING 1919–20.

State.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	C'wealth.
Tonnage ..	391,418	138,503	21,507	276,619	611,664	..	7,872	1,447,583
Percentage on total ..	27.04	9.57	1.49	19.11	42.25	..	0.54	100.00

In normal times the large exports of coal from New South Wales afford special inducements to vessels in search of freights. The tonnage in ballast into New South Wales is mainly for coal cargo, into Victoria for wheat, into South Australia for wheat and ore, and into Western Australia for timber and wheat.

§ 3. Shipping of Ports.

1. **Shipping of Ports.**—Appended is an abstract of the total shipping tonnage—oversea and coastwise—which entered the more important ports of Australia during the year 1919–20, together with similar information in regard to some of the ports of New Zealand *for the year 1920* and of the United Kingdom for the year *1918*:—

SHIPPING OF PORTS, AUSTRALIA, NEW ZEALAND, AND THE UNITED KINGDOM.

Port.	Tonnage Entered.	Port.	Tonnage Entered.
AUSTRALIA—		ENGLAND AND WALES—	
Melbourne	6,953,907	Liverpool (inc. Birkenhead)	9,251,437
Sydney	5,803,384	London	7,827,778
Newcastle	3,679,691	Cardiff	4,776,018
Fremantle	2,252,774	Tyne Ports	4,073,696
Brisbane	1,433,302	Newport	2,396,436
Adelaide(*a*)	2,184,648	Hull	2,182,952
Albany	427,032	Swansea	1,889,888
Townsville	679,896	Beaumaris	1,589,039
Pirie	374,939	Plymouth	1,540,696
Mackay	294,803	Bristol	1,315,593
Bowen	250,416	Manchester (inc. Runcorn)	1,312,281
Cairns	334,092	Middlesbrough.. ..	1,232,754
Rockhampton	241,741	Southampton	1,117,164
Geelong	365,146	Sunderland	1,087,712
Hobart	341,006	Cowes	930,763
Thursday Island	243,527	SCOTLAND—	
Burnie	189,445	Glasgow	2,936,412
Wallaroo	348,080	Leith	641,648
NEW ZEALAND—		IRELAND	
Wellington	2,825,636	Dublin	2,488,284
Auckland	1,886,778	Belfast	2,238,435
Lyttelton	1,528,923	Cork (inc. Queenstown) ..	375,598
Dunedin	611,778		

(*a*) Exclusive of coastal shipping, particulars of which are not available.

§ 4. Vessels Built and Registered.

1. **Vessels Registered.**—The following table shews the number and net tonnage of steam, sailing, and other vessels on the registers of the various States and of the Northern Territory of the Commonwealth of Australia:—

VESSELS ON THE REGISTER, 31st DECEMBER, 1920.

State.	Steam.				Sailing.				Barges, Hulks, Dredges, etc., not Self-propelled.		Total.	
	Dredges and Tugs.		Other.		Fitted with Auxiliary Power.		Other.					
	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.
New South Wales ..	45	1,265	549	109,980	106	1,864	263	18,215	46	10,182	1,009	141,506
Victoria	25	2,992	157	124,171	27	931	72	4,551	69	27,203	350	159,848
Queensland ..	21	3,353	66	12,883	22	204	116	2,053	32	4,345	257	22,838
South Australia ..	16	739	82	28,650	9	341	69	2,366	61	10,155	237	42,251
Western Australia ..	10	191	34	11,911	12	205	334	5,027	26	6,912	416	24,246
Tasmania ..	5	302	53	8,514	48	1,344	75	2,680	2	563	183	13,403
Northern Territory	..	..	1	53	1	17	29	355	..	..	31	425
Total ..	122	8,842	942	296,162	225	4,906	958	35,247	236	59,360	2,483	404,519

2. *Vessels Built.—The following tables shew the number and tonnage of vessels* built in the Commonwealth during each of the years 1901–1920, so far as such information can be ascertained from the Shipping Registers of the various States. The Merchant Shipping Act, under which vessels are registered in Australia, however, does not make it compulsory to register vessels under 15 tons burthen if engaged in river or coastal trade. Larger vessels are also exempt from registration if not engaged in trade. Yachts and small trading vessels may be, and frequently are, registered at the request of the owners. As the Shipping Registers have been, and are, the source of information, it follows that the figures given below will be subject to additions in the future, inasmuch as vessels already built may be added to the register at some future date.

VESSELS BUILT IN THE COMMONWEALTH, 1901 TO 1920.

NUMBER.

Year.	Steamers built of—					Oil Motor Vessels.	Sailing.	Pontoons, Dredges, etc.	Total.
	Wood.	Iron.	Steel.	Composite.	Total.				
1901 ..	18	..	1	..	19	4	45	..	68
1902 ..	29	..	..	1	30	8	78	1	117
1903 ..	15	1	2	..	18	17	158	2	195
1904 ..	14	..	1	1	16	13	76	..	105
1905 ..	15	..	4	..	19	22	17	2	60
1906 ..	12	1	1	..	14	23	21	3	61
1907 ..	17	..	..	1	18	12	37	1	68
1908 ..	13	..	3	..	16	19	18	2	55
1909 ..	10	..	..	..	10	14	38	1	63
1910 ..	9	3	2	..	14	13	36	4	67
1911 ..	14	1	2	1	18	9	38	4	69
1912 ..	9	..	3	2	14	13	31	2	60
1913 ..	17	..	2	..	19	14	30	..	63
1914 ..	17	..	..	..	17	12	28	2	59
1915 ..	4	..	2	..	6	6	4	..	16
1916 ..	2	..	..	..	2	6	2	..	10
1917 ..	3	..	..	1	4	3	5	..	12
1918 ..	2	..	..	..	2	3	..	..	5
1919 ..	2	..	3	..	5	3	8	..	16
1920 ..	4	..	5	1	10	1	5	..	16

TONNAGE.

Year.	Steamers.		Oil Motor Vessels.		Sailing.		Pontoons, Dredges, etc.		Total.	
	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.
1901 ..	2,270	1,251	41	33	1,169	1,027	..	..	3,480	2,311
1902 ..	3,166	1,849	96	82	2,482	2,148	64	64	5,808	4,143
1903 ..	1,569	956	624	455	3,211	2,758	385	350	5,789	4,519
1904 ..	2,094	1,240	161	125	1,641	1,416	..	..	3,896	2,781
1905 ..	2,444	1,462	291	214	338	290	967	896	4,040	2,862
1906 ..	1,426	735	276	196	501	428	546	536	2,749	1,895
1907 ..	2,381	1,305	108	93	840	778	152	145	3,481	2,321
1908 ..	2,492	1,317	270	203	510	428	260	260	3,532	2,208
1909 ..	1,351	735	212	172	814	686	98	98	2,475	1,691
1910 ..	1,944	1,105	153	138	821	704	688	646	3,606	2,593
1911 ..	2,123	1,130	150	121	783	698	762	720	3,818	2,669
1912 ..	2,592	1,592	408	319	678	584	612	287	4,290	2,782
1913 ..	2,227	1,189	335	235	517	491	..	..	3,079	1,915
1914 ..	3,041	1,595	173	144	510	452	148	148	3,872	2,339
1915 ..	914	385	194	129	194	183	..	..	1,302	697
1916 ..	125	63	90	76	39	28	..	..	254	167
1917 ..	619	300	37	30	229	161	..	..	885	491
1918 ..	378	201	448	349	..	..	..	..	826	550
1919 ..	10,829	6,626	56	48	1,010	864	..	..	11,895	7,538
1920 ..	20,296	11,844	34	29	484	356	..	..	20,814	12,229

§ 5. Interstate Shipping.

1. Total Vessels and Tonnage.—In the following tables are shown the number and tonnage of vessels recorded as having entered each State of the Commonwealth from any other State therein, and similarly, the number and tonnage cleared from each State to other Commonwealth States. The table gives results from 1901 to 1919–20. The shipping on the Murray River, between the States of New South Wales, Victoria, and South Australia, is not included.

INTERSTATE SHIPPING, 1901 TO 1919–20.—NUMBER OF VESSELS.

State.	1901.	1906.	1911.	1916–17.	1917–18.	1918–19.	1919–20.
			ENTERED.				
New South Wales ..	1,611	1,575	1,791	1,607	1,469	1,461	1,226
Victoria	1,502	1,561	1,648	1,423	1,335	1,239	1,269
Queensland ..	430	478	567	525	524	529	406
South Australia ..	719	752	789	539	429	445	456
Western Australia ..	446	335	415	385	144	309	367
Tasmania	713	840	864	728	761	727	787
Northern Territory	(a)	(a)	39	29	29	28	21
Total ..	5,421	5,541	6,113	5,236	4,691	4,738	4,532
			CLEARED.				
New South Wales ..	1,473	1,417	1,728	1,572	1,438	1,402	1,200
Victoria	1,569	1,610	1,765	1,580	1,430	1,369	1,367
Queensland ..	395	431	572	479	498	528	383
South Australia ..	826	802	900	579	464	516	497
Western Australia ..	456	363	394	310	168	310	306
Tasmania	694	809	836	717	751	725	781
Northern Territory	(a)	(a)	40	23	26	27	31
Total ..	5,413	5,432	6,235	5,260	4,775	4,877	4,565
			TOTAL.				
New South Wales ..	**3,084**	**2,992**	**3,519**	**3,179**	**2,907**	**2,863**	**2,426**
Victoria	**3,071**	**3,171**	**3,413**	**3,003**	**2,765**	**2,608**	**2,636**
Queensland ..	**825**	**909**	**1,139**	**1,004**	**1,022**	**1,057**	**789**
South Australia ..	**1,545**	**1,554**	**1,689**	**1,118**	**893**	**961**	**953**
Western Australia ..	**902**	**698**	**809**	**695**	**312**	**619**	**673**
Tasmania	**1,407**	**1,649**	**1,700**	**1,445**	**1,512**	**1,452**	**1,568**
Northern Territory	**(a)**	**(a)**	**79**	**52**	**55**	**55**	**52**
Total ..	**10,834**	**10,973**	**12,348**	**10,496**	**9,466**	**9,615**	**9,097**

(a) Included with South Australia.

INTERSTATE SHIPPING, 1901 TO 1919-20.—TONNAGE.

State.	1901.	1906.	1911.	1917-18.	1918-19.	1919-20.
			ENTERED.			
New South Wales	2,031,089	2,456,269	3,318,605	2,502,174	2,291,462	2,451,644
Victoria ..	1,956,900	2,473,771	2,959,551	1,665,921	1,393,549	2,017,798
Queensland ..	545,469	692,354	840,052	768,769	700,617	635,809
South Australia ..	1,135,714	1,582,802	1,970,490	796,627	707,248	1,215,970
Western Australia	973,474	368,664	1,378,800	475,840	944,088	1,364,866
Tasmania ..	485,023	721,240	895,546	432,208	442,457	441,660
Northern Territory	(a)	(a)	64,518	61,464	53,607	34,251
Total ..	7,127,669	8,895,100	11,427,562	6,703,003	6,533,028	8,161,998
			CLEARED.			
New South Wales	1,856,501	2,177,496	3,209,723	2,397,160	2,207,435	2,361,074
Victoria ..	2,038,424	2,617,966	3,233,531	2,031,503	1,874,484	2,428.328
Queensland ..	440,659	578,561	855,776	648,207	690,694	570,200
South Australia ..	1,377,399	1,772,356	2,343,269	939,485	1,090,760	1,452,513
Western Australia	977,846	1,051,629	1,303,359	646,071	1,081,973	1,229,540
Tasmania ..	433,735	636,944	728,170	408,497	426,879	410,152
Northern Territory	(a)	(a)	66,357	50,961	49,043	52,855
Total ..	7,124,564	8,834,952	11,740,185	7,121,884	7,421,268	8,504,662
			TOTAL.			
New South Wales	3,887,590	4,633,765	6,528,328	4,899,334	4,498,897	4,812,718
Victoria ..	3,995,324	5,091,737	6,193,082	3,697,424	3,268,033	4,446,126
Queensland ..	986,128	1,270,915	1,695,828	1,416,976	1,391,311	1,206,009
South Australia ..	2,513,113	3,355,158	4,313,759	1,736,112	1,798,008	2,668,483
Western Australia	1,951,320	2,020,293	2,682,159	1,121,911	2,026,061	2,594,406
Tasmania ..	918,758	1,358,184	1,623,716	840,705	869,336	851,812
Northern Territory	(a)	(a)	130,875	112,425	102,650	87,106
Total ..	14,252,233	17,730,052	23,167,747	13,824,887	13,954,296	16,666,660

(a) Included with South Australia.

The figures presented in the above table include oversea vessels—largely mail boats—passing from one State to another. This renders the results somewhat unsatisfactory.

In the earlier part of this chapter attention was drawn to the custom in vogue prior to Federation of recording vessels from or to "oversea countries *via* other Commonwealth States" as *direct* from or to the oversea country. At each port in Australia these vessels were, on the inward voyage (to Australia), entered as from the oversea

country, and cleared to the next Australian port as "interstate"; on the return journey—the outward voyage—they were entered as "interstate," and cleared as for the oversea country. In order to preserve the continuity of the records of the shipping communication of the several States with oversea countries this method has been followed in continuation of the pre-existing practice, excepting that vessels arriving or departing *via* other Commonwealth States are now so recorded instead of as "direct."

From the above it will be seen that while certain movements of the vessels referred to are included in the interstate shipping, other movements of the same vessels, between the same ports, are not so included.

To ascertain the aggregate movement of shipping between the States during the year 1919–20, including the total interstate movements of oversea vessels, the figures in the following table must be added to those in the table preceding :—

SHIPPING ENTERED AND CLEARED FROM AND TO OVERSEA COUNTRIES VIA OTHER COMMONWEALTH STATES, 1919-20.

State.	Entered.		Cleared.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
New South Wales ..	383	1,597,063	367	1,460,168	750	3,057,231
Victoria	355	1,462,719	318	1,209,702	673	2,672,421
Queensland	88	479,272	107	568,741	195	1,048,013
South Australia ..	181	819,854	212	815,932	393	1,635,786
Western Australia ..	6	19,264	3	9,876	9	29,140
Tasmania	42	140,145	42	154,301	84	294,446
Northern Territory ..	..	..	1	4,223	1	4,223
Total 1919-20	1,055	4,518,317	1,050	4,222,943	2,105	8,741,260
Total 1909 ..	1,205	4,166,470	1,158	4,038,388	2,363	8,204,858

2. **Vessels Engaged Solely in Interstate Trade.**—The elimination of the element of oversea vessels, included in the interstate shipping returns, cannot be accurately effected; nevertheless, a close approximation is furnished if it be assumed that vessels *entered* in the several States as from "oversea countries *via* other Commonwealth States" have really been *cleared* from other States as "interstate," and further, that the vessels *cleared* to "oversea countries *via* other Commonwealth States" have likewise been *entered* as "interstate." Applying this suggestion, and so eliminating all interstate movements of oversea vessels, the number and tonnage movement of vessels engaged solely in the interstate trade for the Commonwealth as a whole during the years 1911 to 1919–20 were as follows :—

NUMBER AND TONNAGE OF VESSELS ENGAGED SOLELY IN INTERSTATE TRADE, 1911 TO 1919-20.

Year.	Entered.		Cleared.	
	No.	Tons.	No.	Tons.
1911	4,794	6,548,069	4,811	6,570,019
1912	5,000	6,809,428	4,990	6,809,426
1913	5,174	8,080,267	5,187	8,105,988
1914–15	5,143	8,140,155	5,142	8,112,005
1915–16	5,121	7,175,175	5,112	7,139,451
1916–17	4,303	6,093,634	4,311	6,127,726
1917–18	4,171	4,856,751	4,152	4,765,957
1918–19	4,093	4,357,115	4,074	4,377,666
1919–20	3,482	3,939,055	3,510	3,986,345

Similar information cannot be given for the States singly, as the records do not disclose the relationship of the movements of the vessels to the States concerned.

3. ***Total Interstate Movement of Shipping.***—From the foregoing it is apparent that the interstate movement of shipping includes two very different elements, viz. :—(i) Oversea ships moving from State to State, and (ii) the movement of ships engaged solely in the interstate carrying trade. These two elements are approximately as follows :—

TOTAL INWARD INTERSTATE MOVEMENT OF SHIPPING, 1912 TO 1919-20.

Vessels.	1912.	1913.	1914-15.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Oversea vessels moving inter-state ..	*10,711,434*	*11,472,490*	*8,737,804*	*8,017,918*	*7,062,129*	*4,202,179*	*5,219,515*	*8,741,260*
Vessels solely inter-state	6,809,428	8,080,267	8,140,155	7,175,175	6,093,634	4,856,751	4,357,115	3,939,055
Total ..	17,520,862	19,552,757	16,877,959	15,193,093	13,155,763	9,058,930	9,576,630	12,680,315

The following table shews the number and tonnage of vessels which entered and cleared each State during 1919-20, including the coastal movements of oversea vessels :—

INTERSTATE SHIPPING OF EACH STATE, 1919-20.

State.	*Entered.*		*Cleared.*		*Total.*	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
New South Wales ..	1,609	4,048,707	1,567	3,821,242	3,176	7,869,949
Victoria	1,624	3,480,517	1,685	3,638,030	3,309	7,118,547
Queensland	494	1,115,081	490	1,138,941	984	2,254,022
South Australia ..	637	2,035,824	709	2,268,445	1,346	4,304,269
Western Australia ..	373	1,384,130	309	1,239,416	682	2,623,546
Tasmania	829	581,805	823	564,453	1,652	1,146,258
Northern Territory ..	21	34,251	32	57,078	53	91,329
Total 1919-20	5,587	12,680,315	5,615	12,727,605	..	..
Total 1909 ..	6,738	14,055,607	6,716	14,069,171	..	..

4. Interstate and Coastal Services.—The foundation of the coastal steamship services in Australia dates back to the year 1851, when a regular trade was established between Melbourne and Geelong by the small screw steamer *Express*. Early in the fifties a company was formed in Tasmania with a capital of £40,000 for the purpose of purchasing steamboats, and employing them in the carriage of passengers and goods between Hobart and Melbourne. This service was commenced in 1852, and was thus the first regular interstate service in Australia. About this time, the great influx of population, and the increase in commerce caused chiefly by the gold discoveries, emphasised the desirability of establishing more regular and quicker means of communication between the principal ports of Australia, and in 1862 the regular interstate service between New South Wales and Victoria was inaugurated by the s.s. *You Yangs*, which was put into commission in regular service between Melbourne, Sydney, and Newcastle. In 1875 a company was formed in Adelaide for the purpose of supplying suitable steamers for the requirements of the trade between Adelaide and Melbourne. The first two steamers of the company were named the *South Australian* and the *Victorian*, and were small vessels of only 400 tons burthen. From the start, success attended these enterprises, and the services thus initiated were rapidly extended and their operations broadened. Numerous other companies were formed to cope with the increasing trade between ports in the Commonwealth, and the companies engaged from time to time added to their fleets of steamers by the acquisition of more modern and faster vessels, until at the end of the year 1915 the total net tonnage owned by the 23 companies from whom returns have been received amounted to over 205,000 tons. Owing to the war this tonnage has been temporarily reduced by the withdrawal of vessels from the coastal trade for transport and other deep-sea services. A summary of the various mail services carried on during the year 1919 is given in Section XVIII. of this work.

The subjoined table gives particulars, so far as they are available, of all steamships engaged in regular interstate or coastal services at the end of each of the years 1901 and 1915 to 1920. The figures for 1915 and subsequent years include particulars relating to a number of smaller companies which did not supply returns for 1901, though they were, for the most part, carrying on business in that year.

PARTICULARS OF STEAMSHIPS ENGAGED IN REGULAR INTERSTATE AND COASTAL SERVICES IN THE COMMONWEALTH, 1901 AND 1915 TO 1920.

Particulars.		1901.	1915.	1916.	1917.	1918.	1919.	1920.
Number of companies making returns ..		11	23	23	23	23	23	23
Number of steamships ..		113	174	169	148	142	148	154
Tonnage ..	Gross ..	184,574	340,443	337,068	241,611	208,700	250,610	280,609
	Net ..	114,080	205,795	204,357	145,424	126,444	148,148	159,298
Horse-power	Nominal ..	18,237	35,787	34,038	28,430	25,078	27,841	29,557
	Indicated ..	122,519	289,488	283,471	207,150	182,404	211,361	236,752
Number of passengers for which licensed	1st class ..	4,617	9,557	9,077	5,459	4,674	5,229	5,250
	2nd class and steerage ..	4,490	6,808	6,578	5,029	4,325	5,524	5,832
Complement of Crew	Masters and officers ..	403	623	606	510	480	493	537
	Engineers ..	332	532	519	415	376	409	464
	Crew ..	2,875	5,508	5,383	3,910	3,365	3,671	4,502

§ 6. Shipwrecks.

The following statement shews the number and tonnage of vessels wrecked, or otherwise lost, on the coast or elsewhere under the jurisdiction of the several States, during the years 1910 to 1920:—

NUMBER AND TONNAGE OF VESSELS WRECKED(a) 1910 TO 1920.

Year.	Class of Vessel.	Number and Tonnage of Vessels. Under 50 tons.		50 to 500 tons.		500 to 2,000 tons.		Over 2,000 tons.		Total.		Passengers and Crew.	Lives Lost.
		No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	No.
1910	Steam ..	1	34	5	941	1	958	2	9,307	9	11,240	624	2
	Sailing ..	5	115	2	205	2	3,095	..	..	9	3,415	94	20
	Total ..	6	149	7	1,146	3	4,053	2	9,307	18	14,655	718	22
1911	Steam ..	4	109	5	681	3	5,194	..	..	12	5,984	275	161
	Sailing ..	7	103	4	642	4	5,100	..	..	15	5,845	128	25
	Total ..	11	212	9	1,323	7	10,294	..	..	27	11,829	403	186
1912	Steam ..	1	11	6	866	..	..	1	2,182	8	3,059	227	151
	Sailing ..	4	44	3	407	5	7,836	..	..	12	8,287	111	19
	Total ..	5	55	9	1,273	5	7,836	1	2,182	20	11,346	338	170
1913	Steam ..	1	25	2	237	..	..	..	..	3	262	23	..
	Sailing ..	10	175	5	359	..	..	..	..	15	534	51	7
	Total ..	11	200	7	596	..	..	..	..	18	796	74	7
1914	Steam ..	3	130	4	926	2	2,721	1	3,558	10	7,335	205	18
	Sailing ..	10	184	11	1,124	2	2,297	..	..	23	3,005	160	34
	Total ..	13	314	15	2,050	4	5,018	1	3,558	33(b)	10,940	365	52
1915	Steam ..	1	38	3	792	1	1,057	..	..	5	1,887	90	1
	Sailing ..	12	245	4	600	..	..	..	..	16	845	82	13
	Total ..	13	283	7	1,392	1	1,057	..	..	21	2,732	172	14
1916	Steam ..	3	107	6	582	..	..	1	2,529	10	3,218	87	6
	Sailing ..	10	240	1	114	..	..	1	3,087	12	3,441	78	19
	Total ..	13	347	7	696	..	..	2	5,616	22	6,659	165	25
1917	Steam ..	4	72	4	551	1	1,015	2	8,763	11	10,401	415	18
	Sailing ..	14	293	4	378	2	1,296	..	..	20	1,967	88	8
	Total ..	18	365	8	929	3	2,311	2	8,763	31	12,368	503	26
1918	Steam ..	2	68	6	867	1	648	..	..	9	1,583	130	12
	Sailing ..	13	239	4	548	..	..	..	..	17	787	109	25
	Total ..	15	307	10	1,415	1	648	..	..	26	2,370	239	37
1919	Steam ..	2	46	7	1,792	..	..	..	..	9	1,838	189	21
	Sailing ..	7	142	2	138	..	..	..	..	9	280	38	1
	Total ..	9	188	9	1,930	..	..	..	..	18	2,118	227	22
1920	Steam ..	1	5	3	567	..	..	..	..	4	572	33	..
	Sailing ..	12	158	3	670	..	..	..	..	15	828	47	38
	Total ..	13	163	6	1,237	..	..	..	..	19	1,400	80	38

(a) In some cases the vessels included in the above return were subsequently recovered.
(b) Not including two dredges, particulars of tonnage of which are not available.

§ 7. Commonwealth Government Shipping Activities.

1. **Local Building Programme.**—The original programme of the Commonwealth Government for building ships in Australia provided for the construction of 48 vessels 24 of which were to be steel cargo steamers and the remaining 24 were to be wooden

sailing vessels with auxiliary power. The contracts for the wooden vessels were cancelled, with the exception of two five-masted schooners under construction by Messrs. Kidman and Mayoh, of Sydney.

With other alterations the local building programme became as follows :—

Locality.	*No.*	*Builders.*	*Type.*
Williamstown, Vic. ..	8	Commonwealth Ship Construction Branch	Steel cargo vessels
Walsh Island, N.S.W. ..	6	N.S.W. Government	"
Cockatoo Island, N.S.W.	4	Commonwealth Navy Department	"
Maryborough, Q. ..	2	Walkers Ltd.	"
Adelaide, S.A. ..	3	Poole and Steel	"

The first part of this programme, consisting of the *Delungra, Dinoga, Dilga* (built at Walsh Island), *Dromana* and *Dumosa* (built at Williamstown), and *Dundula* (built at Cockatoo Island) has been completed, and the ships put into commission. These vessels have each a deadweight capacity of approximately 5,600 tons. Three other vessels of similar dimensions, but of the shelter deck type, having a deadweight capacity of a out 6,000 tons are, also, in commission. These are the *Emita* (built at Williamstown), and the *Eurelia* and *Enoggera* (built at Walsh Island), while the *Eromanga* (built at Walsh Island) has been handed over to the owners, and the *Eudunda* (built at Cockatoo Island) and the *Erriba* (built at Williamstown) will be handed over immediately. The programme includes nine other sister ships to the "E" class ships referred to above. Of these the *Eurimbla* (under construction at the yards of Messrs. Poole and Steel, at Adelaide) was launched on the 20th April, 1921, and the *Echuca* (by Walkers Ltd., Maryborough, Queensland) was launched in May, 1921. Construction of the hulls of the *Euroa* (Williamstown), the *Echunga* (Walkers Ltd.), and the *Euwarra* (Poole and Steel) is well advanced. The material for the remaining four vessels of this type has almost all been delivered. The two remaining vessels of the programme will be built at Cockatoo Island. These will be of a much larger type than any vessels hitherto built in Australia. They will be 520 feet in length, with a deadweight capacity of 12,800 tons, and 250,000 cubic feet of insulated space; their speed at sea will be 13 knots. These vessels will be built by the Commonwealth Navy Department, at Cockatoo Island.

2. **Vessels Built and Building in Great Britain.**—In addition to the foregoing local building programme contracts were made for the building of five steel steamers in Great Britain; three by Vickers Ltd. and two by Beardmore and Co. These vessels will have a length of 520 feet by 68 feet beam, with a deadweight capacity of 12,000 tons, with a capacity of 900,000 cubic feet, of which 370,000 cubic feet are to be insulated. They will be fitted to burn oil or coal as required, and will have a speed of fifteen knots. It is expected that the first of these ships (the *Moreton Bay*) will be ready to leave England on her first voyage to Australia at the end of November or early in December, 1921, and it is hoped that the other four vessels will be completed in time to leave at monthly intervals.

3. **Commonwealth Government Line of Steamers.**—The number and cargo carrying capacity of the fleet operated by the management of the Commonwealth Government Line of Steamers as at the end of September, 1921, was as follows :—

——	Number.	Deadweight Capacity.	Refrigerated Space.
		Tons.	Cub. Feet.
Vessels owned by Commonwealth Government ..	21	134,985	—
Enemy vessels operated	17	124,487	390,016
Total ..	38	259,472	390,016

SECTION XVII.

ROADS AND RAILWAYS.

§ 1. Roads and Bridges.

1. **Introduction.**—In Year Books No. 1 (pages 541 to 551) and No. 2 (pages 675 to 685), a brief historical account was given of the construction and development of roads in Australia. It is not proposed to repeat that account in the present issue of the Year Book.

In the publication "Local Government in Australia," issued by the Commonwealth Statistician in 1919, the subject of roads is also fully discussed.

2. ***Expenditure on Roads and Bridges.***—*Figures shewing the total expenditure on* roads and bridges in the States are not available. The subjoined statement, however, gives the amounts of total loan expenditures by the State Governments up to the 30th June, 1920:—

ROADS AND BRIDGES.—TOTAL GOVERNMENT LOAN EXPENDITURE TO THE 30th JUNE, 1920.

State.	N.S.W.*a*	Victoria.	Q'land.*b*	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
Expenditure ..	1,841,220	2,566,032	931,775	1,809,743	380,431	3,575,775	11,104,976

(*a*) Including punts. (*b*) Including amounts from surplus revenue on which no interest is payable.

The following table shews the annual expenditure from loans on roads and bridges by the central Governments in each State during the years 1915–16 to 1919–20:—

ROADS AND BRIDGES.—LOAN EXPENDITURE BY STATE GOVERNMENTS, 1916 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1915–16 ..	421	405,062	..	102,226	18,450	..	616,159*a*
1916–17 ..	5,428	252,836	..	54,939	5,878	..	319,081*a*
1917–18 ..	22,374	241,892	..	43,603	2,601	..	310,560*a*
1918–19 ..	13,089	360,524	..	22,008	4,310	90,101	490,032
1919–20 ..	6,674	623,570	..	66,393	14,720	81,940	793,297

(*a*) Exclusive of Tasmania.

The two tables given above shew only a small proportion of the actual expenditure upon roads and bridges in the different States, for the reason that (*a*) there have been large expenditures from revenue, both by the central Governments and by local authorities, and (*b*) the State Governments have in many cases voted grants and subsidies on the amount of rates collected, and have issued loans to local authorities either for the express purpose of the construction of roads and bridges or for the general purpose of public works construction. Returns of expenditure, where available, are given below for each

State. Although no revenue is now derived directly from roads and bridges, they are indirectly of great value to the community, forming, next to railways and public lands, the most considerable item of national property.

3. **New South Wales.**—The information contained in the following paragraphs and tables is the latest available as the details are collected triennially in this State, the year 1918 being the latest year of collection. The control of all roads, bridges, and ferries in New South Wales is now regulated by the Local Government Act No. 41, 1919, which came into force on the 1st January, 1920. Under the provisions of this Act, the eastern and central divisions of the State are divided into shires and municipalities for the general purposes of local government, for the endowment of which a sum of not less than £150,000 is payable annually out of the consolidated revenue on the basis of a percentage subsidy on the proceeds of the general rates received by the local governing bodies concerned. The control of all roads, bridges, and ferries (except those proclaimed "National" and those in the unincorporated areas of the Western Division) has been transferred from the Roads Department to the respective shires and municipal councils, who are now responsible for their construction and maintenance. Up to December, 1918, 58 miles of roads, 282 bridges, 55 wharves, 99 jetties, and 17 ferries have been proclaimed as "National" works. Power is given to construct new roads, to widen or close existing roads, to make by-laws for the regulation of traffic, etc.; and in the case of the acquisition of land for the purpose of constructing new roads or of widening existing roads, the provisions of the *Roads Act* 1902 are incorporated. The Minister for Works is empowered to pay subsidies to the local authorities to maintain the roads. The roads leading to and within areas of lands which are made available for closer settlement will be constructed by the Government prior to transfer to the shires, as also will roads required mainly for tourists in districts not likely to produce revenue in rates to the local authorities.

(i) *Principal Main Roads.* The four principal main roads in New South Wales run in the same direction as, and are roughly contiguous to, the four State-owned main railway lines. (*a*) *The Southern Road*, 385 miles in length, runs from Sydney to Albury, and before the days of railway construction formed part of the highway over which the interstate traffic between Melbourne and Sydney used to flow. (*b*) *The South Coast Road*, 250 miles long, runs from Campbelltown along the top of the coast range and across the Illawarra district as far as Bega, from which place it extends as a minor road to the southern limits of the State. (*c*) *The Western Road*, 513 miles long, runs through Bathurst, Orange, and many other important towns as far as Bourke, on the Darling River. (*d*) *The Northern Road*, 405 miles in length, runs from Morpeth, near Maitland, as far as Maryland, on the Queensland border.

(ii) *Length and Classification of Roads and Bridges.* The length of roads in the State (exclusive of 58 miles proclaimed as "National" works) in 1918 was approximately 99,481 miles, of which 10,214 miles were controlled by municipalities, 83,309 by shires, and 5,958 miles were in the unincorporated areas of the Western Division. The following table gives particulars for the year 1918 of roads classified according to whether metalled, etc., formed only, cleared only, or natural surface:—

NEW SOUTH WALES.—APPROXIMATE LENGTH OF ROADS, 1918.

Classification.	Metalled, Ballasted, Gravelled, etc.	Formed only.	Cleared only.	Natural surface.	Total.
	Miles.	Miles.	Miles.	Miles.	Miles.
Metropolitan	1,428	417	168	171	2,184
Country municipalities	2,834	1,514	1,952	1,730	8,030
Shires	15,427	11,049	25,522	30,411	83,309
Western Division (unincorporated) ..	176	117	2,999	2,666	5,958
Total	19,865	13,097	30,641	34,978	99,481

(iii) *Bridges, Culverts, and Ferries.* The more important bridges have been proclaimed under the provisions of the Local Government Act as "National" works (see above), and these, together with the bridges, etc., in the Western Division, remain under the control of, and are maintained by the Public Works Department. Particulars of bridges, culverts, and ferries in the State in 1918, are given in the following table:—

NEW SOUTH WALES.—BRIDGES, CULVERTS, AND FERRIES, 1918.

Particulars.	Bridges.		Culverts.		Ferries.
	No.	Length.	No.	Length.	No.
		Feet.		Feet.	
"National" works	282	108,034	..	..	17
Metropolitan	86	5,549	818	40,939	1
Country municipalities	643	34,212	3,549	90,532	11
Shires	3,567	219,643	34,557	314,079	98
Western Division (unincorporated) ..	97	13,166	209	2,035	..
Total	4,675	380,604	39,133	447,585	127

(iv) *Expenditure on Roads and Bridges.* Since the year 1857 the total expenditure by the Roads Department and Road Trusts on roads and bridges is £25,449,714. In this expenditure is included the cost of administering the Department, services for other Departments, and payments on account of punt approaches and similar works incidental to the road traffic of the country. The amount expended from 1857 to the 30th June, 1914, and for each succeeding financial year up to 1919, is given below. Until recent years, the expenditure on these works increased at a much faster rate than the population.

NEW SOUTH WALES.—EXPENDITURE BY ROADS DEPARTMENT AND ROAD TRUSTS, 1857 TO 1919.

Period.	Expenditure by Roads Department.	Expenditure by Trustees.	Total.
	£	£	£
1857 to 30th June, 1914 ..	23,765,192	1,288,691	25,053,883
1914–15	92,729	..	92,729
1915–16	65,928	..	65,928
1916–17	74,124	..	74,124
1917–18	74,459	..	74,459
1918–19	88,591	..	88,591
Total	24,161,023	1,288,691	25,449,714

The expenditure by the Department is now limited to the construction of roads in closer settlement areas and to the construction and maintenance of national bridges and ferries, and of works in the unincorporated areas of the Western Division.

4. **Victoria.**—Under the Local Government Act 1915, the control, construction, and maintenance of all roads, streets, and bridges are in the hands of municipal councils, which are empowered to open new roads, and to close, divert, or increase the width of any existing street or road, provided that no new road less than one chain in width may be opened without the consent of the Minister.

(i) *Country Roads Board.* With the object of improving the main roads of the State, an Act (No. 2415) was passed on 23rd December, 1912, which empowers the Governor in Council to appoint a board, to consist of three members.

The duties of the board are to ascertain by survey and investigation what roads are main roads; the nature and extent of the resources of Victoria in metals, minerals, and materials suitable for the purposes of road-making and maintenance, and the most effective and economical methods for dealing with the same, and for supplying and utilizing the material in any part of Victoria; the most effective methods of road construction and maintenance; what deviations (if any) in existing roads or what new roads should be made so as to facilitate communication and improve the conditions of traffic; and to record, publish, and make available for general information the results of all such surveys and investigations. The duty of furnishing information that may be required is imposed on the municipal authorities.

The construction of permanent works and the maintenance of main roads are likewise to be carried out by the municipalities to the satisfaction of the board. The total cost of the works, in the first instance, is to be paid by the Treasury, but subsequently one-half of the amount expended on permanent works and maintenance is to be refunded by the municipalities affected.

For the construction of developmental or feeder roads to the main road system the Developmental Roads Act (No. 2944) was passed in 1918. Under the authority of this Act the Country Roads Board is empowered to spend a sum of £500,000 over a period of five years on some of the more important roads in the less developed and neglected parts of the State. This sum was subsequently increased to £2,000,000 (Act No. 2985). The amount expended during the year 1918–19 under this Act was £47,562.

For the purpose of making permanent works, power is given to the Governor in Council to issue stock or debentures to the amount of £400,000 a year for five years, and the principal and interest are a charge upon the Consolidated Revenue of the State. The money so raised is to be placed to the credit of an account to be called "the Country Roads Loan Account," which will be debited with all payments made by the Treasurer towards the cost of permanent works. A sinking fund of 1 per cent. per annum on half the amount borrowed is authorised to be paid out of the Consolidated Revenue until half of the amount borrowed is redeemed. An annual payment to the Treasurer of 6 per cent. on the amount due by each municipality in respect of permanent works is provided for, and the cost of maintenance allocated to each municipality must be paid before the 1st July in each year. A special rate, not to exceed 6d. in the £1 on the net annual value of ratable property, to meet the cost of permanent works, may be levied in any ward or riding of a municipality as the council may direct. In the event of default of payment by a municipality, the board may levy a rate to meet the amount owing. All fees and fines paid under the Motor Car Act, all moneys standing to the credit of the Municipal Fees and Fines Trust Fund, all fees paid on the registration or renewal of the registration of traction engines, and all fees received by the Crown after the 30th June, 1912, under the Unused Roads and Water Frontages Act 1903 (which has been incorporated in the Local Government Act 1915), are to be credited to the Country Roads Board Fund.

Up to the 30th June, 1918, there were 6,500 miles of declared main roads, agreed to by the councils, and gazetted. The total amount expended during 1918–19 for permanent works was £284,734, and for maintenance work £179,133, a total of £463,867. The net receipts for the year were £261,655, of which amount the chief items were motor registration and license fees, £67,666, unused roads and water frontages license fees, £22,374, contributions by municipalities for permanent works, £29,841; ditto for maintenance works, £82,453; and appropriation for maintenance under the Main Roads Act No. 2986, £50,000.

(ii) *General and Local Government Expenditure.* The gross amount expended directly by the State Government of Victoria on roads and bridges up to the end of June, 1919 was £8,806,565. The annual expenditure from ordinary revenue by municipalities is not returned separately, but is included in Public Works Construction and Maintenance

(see Section XXVI., *Local Government*). The subjoined table shews the cost from general revenue of municipalities of private streets, roads, etc., and the amounts of municipal loan expenditure in 1901 and from 1916 to 1920:—

VICTORIA.—EXPENDITURE ON ROADS AND BRIDGES, 1901 AND 1916 TO 1920.

Financial Year.(a)	Expenditure by State Government.	Municipal Loan Expenditure.		Formation of Private Roads, Streets, Lanes, etc.(b)	
		Cities, Towns, and Boroughs.	Shires.	Cities, Towns, and Boroughs.	Shires.
	£	£	£	£	£
1901	72,890	16,844	12,928	18,829	4,521
1916	25,651	92,198	44,945	64,481	3,543
1917	16,514	41,686	7,279	60,277	3,222
1918	19,782	22,037	19,007	72,506	2,968
1919	20,591	31,864	13,194	103,493	7,632
1920	7,832	(c)	(c)	(c)	(c)

(a) The financial years of Melbourne and Geelong end on the 31st December and the 31st August respectively; those of all other municipalities on the 30th September.
(b) Including the cost of flagging, asphalting footpaths, etc., but exclusive of loan expenditure.
(c) Not available.

5. **Queensland.**—In Queensland the construction and maintenance of public roads are controlled under a system of local self-government, for the purposes of which the whole State is divided into (*a*) cities, (*b*) towns, and (*c*) shires. The duties, rights, and responsibilities of the local authorities with regard to roads, streets, and bridges are regulated by the Local Authorities Act of 1902 and subsequent amendments. The councils are invested with full powers to open, close, divert, or widen streets, roads, and bridges, and to make by-laws for the regulation of traffic, etc. The rates which the councils are empowered to levy are supplemented by Government grants. Separate returns as to the expenditure by towns and shires on roads and bridges are not available, the amounts being included in the returns of expenditure on public works, particulars as to which expenditure may be found in Section XXVI., *Local Government*, hereinafter. Under the Main Roads Act of 1920, a main roads board is appointed to take over main roads and construct new ones. The cost is defrayed from moneys appropriated by Parliament, taxes on motor vehicles and traction engines, wheel tax, fees for unused roads, etc. Half the amount expended is to be recovered from local authorities within 30 years with interest.

6. **South Australia.**—Figures are not available in this State for a later date than 1919. Of the several Australian States, South Australia has by far the largest unincorporated area, no less than 88 per cent. of the whole area of the State being in this condition. This area is, however, very sparsely populated and much of it is entirely unoccupied. The remainder of the State is for purposes of local government under the control of municipal corporations and district councils. Under the provisions of the District Councils Acts 1914, 1917, and 1918, the Municipal Corporations Acts 1890 to 1918, and of the Roads Acts 1884 to 1915, the councils are invested with full powers as to the opening and making of new streets and roads, and the diverting, altering, or increasing the width of existing roads; as to raising, lowering, or altering the ground or soil of any street or road; and as to the construction, purchase, and management of bridges, culverts, ferries, and jetties.

(i). *Main Roads and District Roads.* All the roads in each district are classified either as main roads or as district roads. Both classes of roads are under the direct control either of Municipal Corporations or of District Councils, but in the case of main roads the expenditure on construction and maintenance is chiefly provided for by Government grants, which are paid into a Government grants account, while the expenditure on district roads is paid for out of general rates, and out of subsidies on the

amount of such rates granted by the central Government. Under the Roads Amendment Act 1915, a number of roads were declared to be main roads. The Main Roads Fund Act 1920 provides for the raising of £150,000 for the purpose of reconstructing main roads and bridges, and acquiring and working quarries.

The total estimated length of streets and roads in the incorporated area in South Australia up to the 30th June, 1919, was as follows :—

SOUTH AUSTRALIA.—ESTIMATED LENGTH OF ROADS AND STREETS IN THE INCORPORATED AREA, 1919.

Particulars.	Woodblocked.	Macadamised.	Other.	Total.
Miles	10	10,520	32,855	43,394

(ii) *Expenditure by Corporations on Main and District Roads.* The following table shews the expenditure by municipal corporations on both main and district roads for each year from 1915 to 1919 inclusive :—

SOUTH AUSTRALIA.—EXPENDITURE BY CORPORATIONS ON STREETS, ROADS AND BRIDGES, 1915 TO 1919.

Year ended 30th November—	District Roads.		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Construction.	Maintenance.	From Main Road Grants.	Total.	Construction.	Maintenance.
	£	£	£	£	£	£
1915	31,732	74,887	12,084	12,820	26	11,502
1916	25,483	73,118	9,669	12,098	88	13,679
1917	15,952	80,106	14,299	15,787	619	13,073
1918	13,983	89,657	10,490	13,033	1,990	12,524
1919	14,535	99,567	12,466	14,734	..	15,[illegible]63

(iii) *Expenditure by District Councils on Main and District Roads.* The following table gives similar information with respect to main and district roads under the control of district councils :—

SOUTH AUSTRALIA.—EXPENDITURE BY DISTRICT COUNCILS ON STREETS, ROADS, AND BRIDGES, 1915 TO 1919.

Year ended 30th June—	District Roads.		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Construction.	Maintenance.	From Main Road Grants.	Total.	Construction.	Maintenance.
	£	£	£	£	£	£
1915	51,625	85,119	114,722	114,781	15,571	102,679
1916	41,283	79,515	83,264	84,738	12,493	61,172
1917	47,337	79,377	109,044	111,567	18,809	72,844
1918	62,280	103,219	126,682	126,865	41,319	103,312
1919	67,194	106,862	120,635	120,790	28,481	97,991

7. Western Australia.—In Western Australia the construction, maintenance, and management of roads and bridges throughout the State are under the control of municipalities constituted by the Municipal Corporations Acts 1906–1919, and district road boards constituted by the Road Districts Act 1919.

(i) *District Roads and Bridges.* Under the provisions of the Road Districts Act any part of the State, not within a municipality, may be constituted by the Governor in Council into a road district, under the control of a board of not less than five nor more than thirteen members elected by the ratepayers. The board is invested with full powers for controlling and managing all roads and bridges within the district. A district road board may not, however, construct any road or street less than sixty-six feet wide without the consent of the Minister. The construction of the more important bridges and culverts is generally carried out by the Government, the work, after completion, being handed over to the road board for maintenance. In case of land being required for the purpose of constructing a new street or road, or for widening an existing street or road, the provisions of the Public Works Act of 1902 are incorporated in the Road Districts Act.

(ii) *Municipal Streets, Roads, and Bridges.* As regards roads, streets, and bridges within municipalities, these are under the control of local authorities elected under the provisions of the Municipal Corporations Acts 1906–19. The municipal councils are invested with full powers for making, maintaining, and managing all streets, roads, and bridges within the municipal area, and may request the Governor to declare any such land reserved, used, or by purchase or exchange acquired for a street or way, to be a public highway, and on such request the Governor may, by notice in the *Gazette*, proclaim such highway absolutely dedicated to the public.

(iii) *Length of Roads, Number of Bridges, and Expenditure on Roads and Bridges.* The following table gives particulars of the operations of the Road Boards for the years 1916 to 1920:—

WESTERN AUSTRALIA.—PARTICULARS OF ROADS UNDER CONTROL OF DISTRICT ROAD BOARDS, 1916 TO 1920.

Year ended 30th June.	Road Districts.	Revenue.				Expenditure.	Length of Cleared Roads.(d)				No. of Bridges and Culverts.	
		From Rates.	From Grants and Subsidies.	From other Sources.	Total.		Cleared only.	Cleared and Formed.	Metalled or otherwise Constructed.	Total.	Bridges.	Culverts.
	No.	£	£	£	£	£	Miles.	Miles.	Miles.	Miles.	No.	No.
1916	113	104,345	24,397	38,820	167,562	166,840	19,258	4,503	5,076	28,837a	760	6,907
1917	117	115,686	28,226	55,383	199,295	189,177	19,903	5,680	4,359	29,942b	839b	7,433b
1918	116	116,245	32,594	46,187	195,026	206,165	20,691	5,937	4,390	31,018a	906a	7,817a
1919	118	118,144	27,692	53,748	199,584	204,112	22,455	6,645	4,569	33,669b	937b	8,062b
1920	119	135,644	53,234	68,902	257,780	242,365	22,936	6,926	4,770	34,632c	960c	8,255

(a) Exclusive of two Boards which have not supplied the information. (b) Exclusive of three Boards. (c) Exclusive of one Board. (d) Approximate only.

The following table gives similar information with reference to roads controlled by municipalities under the Municipal Corporations Acts 1906–19 :—

WESTERN AUSTRALIA.—PARTICULARS OF STREETS, ROADS, AND BRIDGES UNDER THE CONTROL OF MUNICIPALITIES, 1916 TO 1920.

Year ended the 31st October.	No. of Municipalities.	Length of Streets and Roads.(a)					Revenue.		Expenditure.	
		Paved, Metalled, or Gravelled.	Formed only.	Cleared only.	Not Cleared.	Total.	From Rates.	From Grants.	Works and Improvements.	Street Lighting and Watering.
		Miles.	Miles.	Miles.	Miles.	Miles.	£	£	£	£
1916 ..	30	559	88	253	238	1,138	166,617	9,462	120,411	24,952
1917 ..	28	562	94	244	238	1,138	167,997	7,813	73,991	23,461
1918 ..	25	562	103	231	224	1,120	171,315	1,870	75,086	25,580
1919 ..	23	570	109	220	219	1,118	177,406	3,595	71,907	24,086
1920 ..	23	560	93	254	227	1,134	190,171	1,142	95,194	25,283

(a) Approximate only.

8. **Tasmania.**—(i) *Construction.* In Tasmania the cost of construction of roads, tracks, and bridges (and in earlier days of streets) has been borne almost entirely by the central Government.

Up to the 30th June, 1920, the loan expenditure on these works has been £3,575,775. In addition, half the proceeds of the sale of land has formed a Crown Lands Fund for the construction of roads to new holdings. Under this provision £645,674 has been expended. This fund has in recent years more than met the demands on it, and expenditure therefrom since 1918 has been limited to £10,000 annually, the balance being used for redemption of debt.

ROADS, STREETS, TRACKS, AND BRIDGES—EXPENDITURE ON CONSTRUCTION.

Period.	Expenditure.		New-road Mileage.		New Bridges.
	Loans.	Crown Lands Fund.	Cleared.	Metalled.	
	£	£	Miles.	Miles.	No.
Total up to 31st December, 1902 ..	1,932,919	332,845	..	..	..
Yearly average—					
1903–7	30,611	26,845	103	26	11
1907–11	92,416	21,946	205	105	13
1911–15	160,730	18,233	234	208	50
1915–19	105,097	6,186	94	113	49
Year 1919–20	81,940	6,563	67	68	17
Total to 30th June, 1920	3,575,775	645,674	..	..	..

The total length of roads at the end of 1920 may be taken as approximately 12,000 miles, of which about half is metalled or gravelled.

(ii) *Maintenance.* The maintenance of roads and bridges is undertaken by the municipalities with some assistance from the central Government, chiefly by way of subsidy. Under the Aid to Road Rates Act, £11,000 are distributed annually among the municipalities, in proportion as the cost of maintenance falls on their resources. Under the Main Roads Maintenance Act 1918 a further sum of £5,000 was provided out of Consolidated Revenue, which, with the addition of the Motor Tax, less 5 per cent., and a contribution from municipalities, is expended on the upkeep of main roads. In 1920 the amount available for 1,011 miles of main road was £21,545. The work is carried out in most cases by municipalities, under the general direction of an Advisory Board, on which the Government, the municipalities, and the motorists are all represented. Further, the Repairs to Roads Act 1920 provides for loans for 15 years to municipalities for the purpose of re-making roads—half the loan is repaid in instalments by the local body and the remainder by the State Government. The Government also provides for the repair of the more important bridges and for emergency work.

The municipal expenditure on roads (excluding Hobart and Launceston streets) is practically supplied by the road rate, which must by law be between sixpence and eighteen pence in the pound of annual value. The average road rate actually collected has slightly increased from 10.7 pence in the pound in 1908 (the first year of the present municipalities) to 11.6 pence in the pound in 1918.

EXPENDITURE ON MAINTENANCE OF ROADS AND BRIDGES IN MUNICIPALITIES (*EXCLUDING HOBART AND LAUNCESTON*), 1908 TO 1920.

Year.	From Municipal Road Rate.	From State Revenue.
	£	£
1908	42,240	17,339
Average 1909–12	48,759	19,259
Average 1913–17	55,722	20,123
1919	61,316	29,986
1920	(*a*)	30,006

(*a*) Not available.

§ 2. Railways.

(A) General.

1. **Introduction.**—In the issues of the Commonwealth Year Book, Nos. 1 to 7, the statistics of all Government railway systems were treated under the head of *Government Railways.* In the following issues, Nos. 8 to 13, the greater part of those statistics relating to State-owned lines was dealt with separately from those under the control of the Commonwealth Government. This arrangement is continued in the present issue. The State railways are referred to throughout as "State" and the Commonwealth railways as "Federal" railways. There is, however, a summary of the working of the Federal and States' railways in part (E) of the present section.

2. **Railway Statistics.**—In some of the earlier issues of the Year Book will be found a condensation of the report issued in 1909 by the Commonwealth Statistician to the Minister for Home Affairs on the subject of *The Desirability of Improved Statistics of Government Railways in Australia* (see Year Book No. 7, page 598).

3. **Railway Communication in the Commonwealth.**—An account of the progress of railway construction in Australia since the opening of the first line in 1854 will be found in Year Book No. 6, p. 681. In the eastern, south-eastern, and southern parts of Australia there now exists a considerable network of railway lines converging from the various agricultural, pastoral and mining districts towards the principal ports, which are themselves connected by systems of lines running approximately parallel to the coast. In the east, lines radiating from Cairns, Townsville, Rockhampton, Brisbane, and Sydney extend inland in various directions for distances ranging up to over 600 miles; in the south-east there are numerous lines, those in Victoria converging towards Melbourne, while others in New South Wales have their terminus in Sydney; in the south there are four main lines, with numerous branches, running from Melbourne, while from Adelaide one main line, with several branches to the coastal towns, runs inland in a northerly direction for a distance of nearly 700 miles, and another line runs in a south-easterly direction to various ports, meeting the main line from Melbourne on the border of South Australia and Victoria near Serviceton. The South Australian and Victorian railway systems also meet on the border at two other points, one near Pinnaroo, and the other at Rennick near Mount Gambier. By the opening, in 1917, of the Trans-Australian railway from Port Augusta to Kalgoorlie, through communication by rail was established between the eastern States and the Western Australian railway system. The main interstate line, which permits of direct communication between the five capital cities—Brisbane, Sydney, Melbourne, Adelaide, and Perth—covers a distance from end to end of 3,474.66 miles or 3,479.67 miles via Newcastle. The scheduled time for the journey from Brisbane to Perth is five days twenty-two hours forty-five minutes, and from Perth to Brisbane five days twenty hours forty minutes, the time in each case being taken over all.

In the following tables particulars are given of the gauges of lines, changing stations and duration of stops thereat, arrival and departure times, distances and average speeds on the journey from Brisbane to Perth, and vice versa:—

BRISBANE TO PERTH.

Gauge of Line.	Terminal or Changing Stations.	Times. Arr.	Times. Dep.	Day on Journey. (a)	Actual Time.	Duration of Stops at Changing Stations.	Intermediate Distance.	Total Distance from Brisbane.	Average Speed. (b)
ft. in.					h. m.	h. m.	miles.	miles.	m.p.h.
	Brisbane ..	—	8.5 a.m.	Monday ..	—	—	—	—	—
3 6	Wallangarra	5.55 p.m.	6.17 p.m.	"	9 50	0 22	223.46	223.46	22.72
4 8½	Sydney ..	11.25 a.m.	7.25 p.m.	Tuesday	17 8	8 00	c497.38	720.84	29.03
4 8½	Albury ..	7.23 a.m.	7.47 a.m.	Wednesday	11 58	0 24	401.62	1,122.46	33.56
5 3	Melbourne ..	12.51 p.m.	4.30 p.m.	"	5 4	3 39	190.50	1,312.96	37.60
5 3	Adelaide ..	9.55 a.m.	10.45 a.m.	Thursday	17 25	0 50	483.05	1,796.01	27.78
5 3	Terowie ..	3.40 p.m.	4.10 p.m.	"	4 55	0 30	139.81	1,935.82	28.42
3 6	Port Augusta	10.5 p.m.	10.40 p.m.	"	5 55	0 35	119.33	2,055.15	20.16
4 8½	Kalgoorlie ..	d10.23 a.m.	3.25 p.m.	Saturday	35 43	5 2	1,051.30	3,106.45	29.42
3 6	Perth ..	6.50 a.m.	—	Sunday	15 25	—	373.22	3,479.67	24.20
				Total ..	123 23	19 22	3,479.67	—	28.20

PERTH TO BRISBANE.

Gauge of Line.	Terminal or Changing Stations.	Times. Arr.	Times. Dep.	Day on Journey. (a)	Actual Time.	Duration of Stops at Changing Stations.	Intermediate Distance.	Total Distance from Perth.	Average Speed. (b)
ft. in.					h. m.	h. m.	miles.	miles.	m.p.h.
	Perth ..	—	10.0 p.m.	Monday ..	—	—	—	—	—
3 6	Kalgoorlie ..	1.30 p.m.	2.15 p.m.	Tuesday	15 30	0 45	373.22	373.22	24.08
4 8½	Port Augusta	5.0 a.m.	8.35 a.m.	Thursday	38 45	3 35	1,051.30	1,424.52	27.13
3 6	Terowie ..	2.46 p.m.	3.16 p.m.	"	6 11	0 30	119.33	1,543.85	19.30
5 3	Adelaide ..	7.50 p.m.	8.30 p.m.	"	4 34	0 40	139.81	1,683.66	30.61
5 3	Melbourne	1.3 p.m.	5.0 p.m.	Friday ..	16 33	3 57	483.05	2,166.71	29.19
5 3	Albury ..	10.21 p.m.	10.40 p.m.	"	5 21	0 19	190.50	2,357.21	35.61
4 8½	Sydney ..	10.45 a.m.	3.30 p.m.	Saturday	12 5	4 45	401.62	2,758.83	33.24
4 8½	Wallangarra	9.7 a.m.	9.30 a.m.	Sunday ..	17 37	0 23	c497.38	3,256.21	28.23
3 6	Brisbane ..	6.40 p.m.	—	"	9 10	—	223.46	3,479.67	24.37
				Total ..	125 46	14 54	3,479.67	—	27.68

(a) *The days here given are for the purposes of time table interpretation. They are not the only days on which the service is provided.* (b) Exclusive of stops between changing stations. (c) Runs via Newcastle. (d) 11.53 a.m. on Mondays.

The time allowed for the journey from Port Augusta to Kalgoorlie, 35 hours 43 minutes (actual), gives an average speed of 29.43 miles per hour throughout, inclusive of stoppages. Exclusive of stoppages, which aggregate slightly under three hours, the average speed is about 32.15 miles per hour. In the opposite direction the gross time is 38 hours 45 minutes (actual), which gives an average speed of 27.13 miles per hour. Exclusive of stoppages, which aggregate about 3 hours 10 minutes, the average speed is about 29.55 miles per hour.

The average speed inclusive of all stops on the journey from Brisbane to Perth is 24.38 miles per hour, and from Perth to Brisbane 24.74 miles per hour.

The longest railway journey which can be undertaken in Australia, on one continuous line of railway, is from Longreach in Queensland to Meekatharra in Western Australia, a total distance of 4,760.16 miles.

In Western Australia there is a connected system of main or trunk lines between the ports of the State and the agricultural, pastoral, and mining districts, while there are also two short lines, one on the north-west, the other on the south coast, which are unconnected with the main system. In the northern parts of Queensland and in the Northern Territory there are also several disconnected lines running inland from the more important ports. In Tasmania the principal towns are connected by a system of lines, and there are also, more especially in the western districts, several lines which have been constructed for the purpose of opening up mining districts.

4. Standard Times in Australia.—In Year Book No. 12, p. 630, particulars are given in regard to standard times now in use in the Australian States, and an explanation is made as to the mode in which the difference of time between Adelaide and Perth is dealt with on the Trans-Australian Railway. Owing to limits of space it is not possible to repeat this information in the present volume.

5. Non-conformity of Gauge.—With but few exceptions, all the railway lines in the Commonwealth open for general traffic are now owned and managed by the respective States in whose territory they run, or by the Commonwealth Government; but, unfortunately for the purpose of interstate traffic, the construction of the various systems in different parts of Australia has proceeded without uniformity of gauge. In 1846 Mr. Gladstone, then Colonial Secretary, recommended in a despatch to the Governor of New South Wales that the 4-ft. 8½-in. gauge should be adopted. In 1850, however, the engineer to the Sydney Railroad and Tramway Company strongly advocated the adoption of the 5-ft. 3-in. gauge, and in 1852 an Act was passed making it compulsory that all railways in New South Wales should be constructed to the wider gauge, the Governors of Victoria and South Australia being duly advised of the step that had been taken. In 1852, however, the company mentioned having changed its engineer, also changed its views as to the gauge question, and in the following year succeeded in obtaining the repeal of the Act of 1852 and in securing the passing of another, under the provisions of which the narrower gauge was made imperative. This step was taken without the concurrence of the other States concerned, and a considerable amount of ill-feeling arose, especially in Victoria, where two private companies had already placed large orders for rolling stock to be constructed to the broad gauge originally chosen. The result was that it was decided in Victoria to adhere to the 5-ft. 3-in. gauge as the standard gauge for the State, while the Sydney Railroad and Tramway Company proceeded with the construction of its lines to the 4-ft. 8½-in. gauge, and these two gauges have since been adhered to as the standard gauges of the respective States. The Queensland Government had, at the outset, adopted a gauge of 3-ft. 6-in. as being best suited to the requirements of the colony, and has since adhered to that gauge throughout the State, so that all goods requiring conveyance into New South Wales or vice versa have to be transhipped at the boundary between the two States. In June, 1914, however, the Queensland Government purchased two short lengths of line laid on a 2-ft. gauge. In South Australia the 5-ft. 3-in. gauge was adopted, but in 1870, on the grounds of economy, the 3-ft. 6-in. gauge was introduced, and many of the lines in South Australia have been constructed with that gauge. The interstate line between Adelaide and Melbourne was opened as a through route in January, 1887, and is of the 5-ft. 3-in. gauge throughout. At the 30th June, 1920, of the 2,333.19 miles of State Government railways in South Australia 1,209.59 miles were of 3-ft. 6-in. gauge, exclusive of 477.96 miles of the same gauge from Port Augusta to Oodnadatta belonging to the Federal Government. In the Northern Territory the line from Darwin to Emungalen (Katherine River), 198.68 miles in length, is of 3-ft. 6-in. gauge. In Western Australia the 3-ft. 6-in. gauge was also adopted. In Tasmania the first line made had a gauge of 5-ft. 3-in., but it was converted in 1887 to 3-ft. 6-in., which, with the exception of three short lines with a 2-ft. gauge, is the present gauge of the Government and most of the privately-owned lines. It was recognised in both these States that the construction of railways was essential to their proper development, but as their financial resources would not bear a heavy initial expenditure in connexion with the establishment of railway lines, it was decided to adopt the narrow gauge. In Victoria, short lengths of light railways have been constructed to a gauge of 2-ft. 6-in. of an aggregate length of 121.90 miles.

6. Interstate Communication.—Until the railway systems of the eastern States were connected at the common boundaries, the inconvenience of non-conformity of gauge was not felt. Since then, however, the necessary transhipments of both passengers and goods have been a source of increasing trouble, delay, and expense. On the 14th June, 1883, a railway bridge over the River Murray at Wodonga was opened for traffic, and railway communication was then established between Melbourne and Sydney. On the 19th January, 1887, the last section of the Victorian line to Serviceton, on the South Australian border, was completed, and a junction was thus effected with the South Australian line to Adelaide. On the 16th January, 1888, a junction was effected between the New South Wales and Queensland lines at Wallangarra, but there was still a break in the line from Sydney at the Hawkesbury River, thirty-six miles from Sydney. This last

link was, however, completed on the 1st May, 1889, by the opening of the Hawkesbury River bridge, 2,900 feet in length, and railway communication was thus established between the four capital cities, Brisbane, Sydney, Melbourne, and Adelaide.

By the opening of the Trans-Australian railway, to which reference has already been made, Western Australia is now linked to the other States, and an unbroken line of communication established from one side of the continent to the other. The construction, moreover, of lines decided upon, and in some cases already made, connecting Victoria with the Riverina district in New South Wales and with the wheat-growing districts of South Australia, will undoubtedly facilitate interstate exchange and will allow the produce of inland areas to find its natural outlet at the nearest port.

7. **Unification of Gauge.**—The development of the railway systems of the Commonwealth has shewn that the adoption of different gauges on the main lines in the several States was a serious error. As already mentioned, the extra cost, delay, and inconvenience incurred by the necessity of transferring through-passengers and goods at places where there are breaks of gauge are becoming more serious as the volume of business increases. As an indication of the extra cost thus involved, the junction charges on interstate traffic between New South Wales and Victoria range from 1s. 2d. to 2s. 11d. per ton.

Although the cost of alteration to a uniform gauge would be great, many propositions have from time to time been put forward with the object of securing such a gauge, and attention has been drawn to the importance of the unification of gauges before further expenditure on railway construction is incurred by the States. The problem is, however, one which is by no means easy of solution, and the difficulties are increased by the introduction of what may be called questions of local or State policy.

The first question that naturally arises in considering the problem is as to which gauge should be adopted as the universal gauge of the Commonwealth. As regards State Government railways, the 4-ft. 8½-in. gauge has a mileage of 4,975.81, all in New South Wales; Victoria and South Australia have a combined mileage of 5,215.70 of 5-ft. 3-in. gauge; while New South Wales, Queensland, South Australia, and Western Australia have together 10,442.17 miles of 3-ft. 6-in. gauge. In addition, the Commonwealth Government has (i) 4.94 miles in the Federal Territory, 597.36 miles in South Australia, and 453.94 miles in Western Australia of 4-ft. 8½-in. gauge, and (ii) 477.96 miles in South Australia, and 198.68 miles in the Northern Territory of 3-ft. 6-in. gauge. By far the greater part of the mileage of private railways open for general traffic has also been constructed to the 3-ft. 6-in. gauge. The mere question of preponderance of mileage, therefore, indicates the 3-ft. 6-in. gauge for adoption. But this question is obviously subordinate to those involving engineering and economic considerations. Thus, the relative efficiency from the widest point of view, the relative costs of alterations of the permanent way and rolling stock, of carrying capacity and speed, that is to say, questions of a technical nature about which figures are not available, enter into the grounds for decision.

Many conferences on the subject of the unification of gauge have taken place from time to time both between the Railways Commissioners and between the Premiers of the States concerned, and references to these conferences have been made in previous issues of the Year Book (see No. 11, pp. 657–8). A conference between the engineers of the Commonwealth and States railways was held in Melbourne in August, 1918. Much consideration was given to the devices to deal with the break-of-gauge question, which had been submitted to the conference, but all of them failed to meet the requirements of the conditions laid down by the conference in order to ensure both safety and celerity of action in train working.

In June, 1920, a conference took place at Sydney between the Commonwealth and State railway engineers. Four proposals were dealt with, of which the third was considered the most satisfactory compromise for the present conditions of traffic. This proposal favored the conversion of existing lines between the capitals and the construction of such new lines as are advisable to the 4-ft. 8½-in. gauge, the cost of which was estimated at £26,581,000, of which £8,154,000 would be for new line construction.

In July, 1920, a conference took place at Melbourne between the Commonwealth and State representatives of three Governments, and a decision was arrived at under which a committee, consisting of two experts from abroad and an Australian representative not connected with the railways, was to consider the whole question of gauge unification and report to the various Governments concerned as to the best course to be adopted.

On 8th February, 1921, the Governor-General appointed a Royal Commission consisting of two railway engineers—one civil and one mechanical—together with an independent commissioner to inquire into and report on the question of the unification of gauges. The Commission was constituted as follows :—Chairman, Mr. John James Garvan; Civil Engineer, Mr. Rustat Blake; Mechanical Engineer, Mr. Frederick Methven Whyte; with Mr. E. Simms as Secretary. (See also Appendix.)

8. *Rolling Stock Gauges.—Allied to the question of the gauges of the railways of* Australia is that of the rolling stock gauges which are in use, the rolling stock gauge being the maximum transverse dimensions to which the rolling stock may be constructed. In the following table will be found particulars of the rolling stock gauges, together with maximum length and weights of vehicles, at present in use on the Government railways, State and Federal :—

STATE AND FEDERAL GOVERNMENT RAILWAYS.—ROLLING STOCK GAUGES IN USE, 1920.

PASSENGER ROLLING STOCK.

Railway.	Gauge of Track.		Maximum Rolling Stock Gauge.						Maximum Tare.		
			Width.		Height above Rail Level.		Length over all.				
	ft.	in.	ft.	in.	ft.	in.	ft.	in.	t.	c.	q.
New South Wales	4	8½	10	6	14	0	74	4½	44	2	1
Victoria	5	3	10	0	14	2	74	1¼	47	16	0
"	2	6	7	0¼	10	4¼	31	8	8	11	0
Queensland	3	6	9	4	12	9	55	5	26	17	0
"	2	0	6	3⅞	10	0	22	0	3	0	0
South Australia	5	3	10	4¼	14	1¾	74	1¼	40	11	0
"	3	6	9	4⅝	12	1	62	6	24	18	0
Western Australia	3	6	8	10	12	7	61	9	31	10	0
Tasmania	3	6	9	6	12	5	64	0	30	0	0
"	2	0	6	6	10	0	30	2	5	10	1
Federal—											
Trans-Australian	4	8½	10	6	14	6	78	11½	48	0	0
Northern Territory	3	6	9	4	12	9	39	0	12	0	0
Oodnadatta	3	6	10	2	12	4	39	0	12	0	0

GOODS ROLLING STOCK.

Railway.	Gauge of Track.		Maximum Rolling Stock Gauge.						Maximum—					
			Width.		Height above Rail Level.		Length over all.		Tare.			Carrying Capacity.		
	ft.	in.	ft.	in.	ft.	in.	ft.	in.	t.	c.	q.	t.	c.	q.
New South Wales ..	4	8½	9	8	13	6	60	11	20	10	3	40	0	0
Victoria	5	3	9	7½	13	7¾	55	4½	20	13	1	30	0	0
"	2	6	6	5½	9	7¼	27	3¾	7	12	2½	10	0	0
Queensland.. ..	3	6	8	9	12	0	* 45	5	14	16	0	21	8	0
"	2	0	6	6	9	0	22	0	4	10	0	16	0	0
South Australia ..	5	3	10	0¼	12	10¾	43	6	16	0	0	30	0	0
" ..	3	6	8	6	12	1	38	9	11	15	0	25	0	0
Western Australia ..	3	6	8	8	12	6	44	9	17	18	0	27	0	0
Tasmania	3	6	8	6	11	0	40	10	12	5	0	30	0	0
"	2	0	6	0	6	6	27	0	5	15	2	20	0	0
Federal—														
Trans-Australian ..	4	8½	10	6	14	6	47	6½	15	0	0	40	0	0
Northern Territory	3	6	9	4	12	9	34	6	9	11	0	12	0	0
Oodnadatta ..	3	6	10	2	12	4	18	0	5	0	0	5	0	0

In the above tables the transverse dimensions given are not necessarily those of one particular vehicle, but are the greatest employed on any vehicle.

It will be observed that the dimensions adopted by the Federal Government for the Trans-Australian Railway are in excess of those at present in use on the 5-ft. 3-in. gauge lines of Victoria and South Australia, and the 4-ft. 8½-in. gauge lines of New South Wales. It is, however, the intention of the latter State to adopt the Federal standard as soon as possible, and with that end in view a commencement has been made in the Sydney suburban area in the enlargement of bridges, tunnels, buildings and platforms to enable the larger rolling stock to be employed. The question of standard couplings on the New South Wales lines is also receiving attention.

9. Mileage Open for Traffic.—In all the States of the Commonwealth the principle that *the control, construction, and maintenance of the railways should be in the hands* of the Government has long been adhered to, excepting in cases presenting unusual circumstances. In various parts of the Commonwealth, lines have been constructed and managed by private companies, but at the present time nearly the whole of the railway traffic in the Commonwealth is in the hands of the various State Governments or of the Commonwealth Government. A large proportion of the private lines which are at present running have been laid down for the purpose of opening up forest lands, mining districts, or sugar areas, and are not generally used for the conveyance of passengers or the public conveyance of goods. (See (F) *Private Railways*, hereinafter.)

Mileage of Government and Private Lines, 1855 to 1920. The subjoined table shews the mileage of Commonwealth Government, State Government, and private lines open *for traffic (exclusive of sidings and cross-overs) in each State at different periods* since the inauguration of railways in Australia in 1854 up to the year 1920. The railway mileage given for each State includes both Commonwealth and State Government railways in that State, and in this table and in those on the following page, is estimated from the geographic point of view and not from that of ownership. The figures from 1855 to 1881 are given to the end of the calendar year; the later figures are to the end of the financial year ended on the 30th June, unless otherwise stated, excepting the mileages for private lines, which are in most cases taken for the calendar year :—

GOVERNMENT AND PRIVATE RAILWAYS.—MILEAGE OPEN, 1855 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Federal Territory	Nor. Ter.	C'wealth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1855 ..	14	2½	..	6¾*a*	..	..	..	..	23¼
1861 ..	73	114	..	56	..	..	..	..	243
1871 ..	358	276	218	133	12	45	..	..	1,042
1881 ..	1,040	1,247	800	845	92	168	..	..	4,192
1890–1	2,263	2,763	2,205	1,666	656*b*	425*b*	..	145	10,123
1900–1	2,926	3,238	2,904	1,736	1,984	618*c*	..	145	13,551
1910–11	4,027	3,574	4,390	1,993	3,208	675	..	145	18,012
1914–15	4,439	3,936½	5,449¼	2,955	4,553	779½	5	146	22,263¼
1915–16	4,491¾	4,152½	6,452½	3,060¼	4,707½	758¼	5	146	23,773¾
1916–17	4,781¾	4,176½	6,702¼	3,241¾	4,878½	783¾	5	199½	24,769
1917–18	5,025	4,222¾	6,769½	3,356½	4,904¼	781¾	5	199½	25,264¼
1918–19	5,170	4,260½	6,841½	3,404	4,965½	811	5	199½	25,657
1919–20	5,377	4,284½	6,946¾	3,458¼	4,846	840¼	5	198¾	25,956¼

(*a*) The line between Goolwa and Port Elliot was opened in 1854 as a horse tramway, but now forms part of the railway system. (*b*) To the 31st December, 1891. (*c*) To the 31st December, 1901.

It will be seen from the above table that the rate of construction up to the year 1871 was very slow, the average annual length of lines opened from 1861 to 1871 being only 80 miles for the whole Commonwealth. By the middle of the following decade, however, the principal mountain ranges had been crossed, and the work of construction could be proceeded with at a greater rate, and at a less cost per mile. A great period of activity was from 1881 to 1891, when the average annual length opened for traffic was 593 miles for the whole Commonwealth; the corresponding figures for the periods from June, 1891, to June, 1901, and from June, 1901, to June, 1911, were 343 and 446 miles respectively. Since June, 1911, the average annual length opened for traffic has been 794 miles.

The reduction in the mileage in Western Australia is due to the fact that certain private railways have been dismantled. There was no change in the mileage of the Government railways during the year.

10. **Comparative Mileage of Government and Private Lines, 1920.**—The subjoined table shews for each State (*a*) the length of lines owned by the State Government, and by the Commonwealth Government in that State, all of which lines are open for general use by the public, (*b*) the length of private lines available for general use by the public, and (*c*) the length not so available. The mileages specified in the case of Government lines are to the 30th June, 1920; those given for private lines are as nearly as possible to the 31st December, 1919:—

GOVERNMENT AND PRIVATE RAILWAYS.—MILEAGE OF GOVERNMENT LINES, OF PRIVATE LINES AVAILABLE FOR GENERAL TRAFFIC, AND OF PRIVATE LINES NOT SO AVAILABLE, 1919-20.

State or Territory.	Government Lines—		Private Lines available for General Traffic.	Total Open for General Traffic.	Private Lines used for Special Purposes only.	Grand Total.
	State.	Federal.				
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales	5,015.32	..	189.32	5,204.64	172.35	5,376.99
Victoria ..	4,214.00	..	24.94	4,238.94	45.71	4,284.65
Queensland. ..	5,685.10	..	278.68	5,963.78	982.91	6,946.69
South Australia	2,333.19	1,075.32	33.80	3,442.31	15.95	3,458.26
Western Australia	3,538.23	453.94	278.35	4,270.52	575.50	4,846.02
Tasmania ..	628.70	..	162.86	791.56	48.69	840.25
Federal Territory	..	4.94	..	4.94	..	4.94
Northern Territory	..	198.68	..	198.68	..	198.68
Total ..	21,414.54	1,732.88	967.95	24,115.37	1,841.11	25,956.48

11. **Comparative Railway Facilities in Different States and Territories, 1920.**—The relations to populations and areas respectively of the mileage of line open to the public for general traffic (including both Government and private lines) on the 30th June, 1920, are shewn in the subjoined statement for each State, the Federal and Northern Territories, and also for the Commonwealth :—

GOVERNMENT AND PRIVATE RAILWAYS.—COMPARISON OF RAILWAY FACILITIES IN DIFFERENT STATES AND TERRITORIES, 1920.

State or Territory.	Population, 30th June, 1920.	Area.	Mileage of Railway.	
			Per 1,000 of Population.	Per 1,000 sq. miles of Territory.
	Number.	Sq. miles.	Miles.	Miles.
New South Wales	2,028,673	309,432	2.56	16.82
Victoria	1,504,260	87,884	2.82	48.24
Queensland..	737,085	670,500	8.09	8.89
South Australia	472,432	380,070	7.29	9.06
Western Australia	334,176	975,920	12.78	4.38
Tasmania	216,643	26,215	3.65	30.19
Federal Territory	2,222	940	2.22	5.26
Northern Territory	4,243	523,620	46.86	0.38
Commonwealth ..	5,299,734	2,974,581	4.55	8.11

12. **Classification of Lines according to Gauge, 1919-20.**—The subjoined table gives a classification, according to gauge, of the total mileage, exclusive of sidings and cross-overs, of (i) Commonwealth Government railways, given in the State or Territory in which situated; (ii) State Government railways; (iii) Private railways open to the

public for general traffic; and (iv) Private lines open for special purposes. Particulars of Government railways are up to the 30th June, 1920, of private railways open for general traffic to the 31st December, 1919, and of private railways' open for special purposes to the 31st December, 1919, as nearly as possible.

GOVERNMENT AND PRIVATE RAILWAYS.—CLASSIFICATION ACCORDING TO GAUGE, 1919-20.

State or Territory in which situated.	*Route Mileage having a Gauge of—*								Total.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	3 ft. 0 in.	2 ft. 6 in.	2 ft. 3 in.	2 ft. 0 in.	1 ft. 8 in.	
FEDERAL RAILWAYS.									
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
South Australia ..	..	597.36	477.96	..	..	..	..	..	1,075.32
Western Australia	..	453.94	..	..	..	..	..	..	453.94
Federal Territory	..	4.94	..	..	..	..	..	..	4.94
Northern Territory	..	..	198.68	..	..	..	..	..	198.68
Total ..	..	1,056.24	676.64	..	..	..	..	..	1,732.88
STATE RAILWAYS.									
New South Wales	..	4,975.81	39.51	..	..	..	..	..	5,015.32
Victoria ..	4,092.10	..	..	..	121.90	..	..	..	4,214.00
Queensland	..	..	5,654.84	..	..	..	30.26	..	5,685.10
South Australia ..	1,123.60	..	1,209.59	..	..	..	..	..	2,333.19
Western Australia	..	..	3,538.23	..	..	..	..	..	3,538.23
Tasmania ..	..	..	605.12	..	..	..	23.58	..	628.70
Total ..	5,215.70	4,975.81	11,047.29	..	121.90	..	53.84	..	21,414.54
PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC.									
New South Wales	45.00	81.40	36.67	..	..	..	26.25	..	189.32
Victoria ..	13.94	..	..	11.00	..	..	..	..	24.94
Queensland ..	..	..	113.09	..	7.00	..	158.59	..	278.68
South Australia ..	..	..	33.80	..	..	..	..	..	33.80
Western Australia	..	..	278.35	..	..	..	..	..	278.35
Tasmania ..	..	..	152.87	..	..	..	9.99	..	162.86
Total ..	58.94	81.40	614.78	11.00	7.00	..	194.83	..	967.95
PRIVATE RAILWAYS OPEN FOR SPECIAL PURPOSES.									
New South Wales	..	158.59	3.50	..	..	..	10.26	..	172.35
Victoria ..	28.83	..	..	4.40	..	..	12.48	..	45.71
Queensland ..	..	..	210.88	..	19.44	..	752.59	..	982.91
South Australia ..	..	..	..	..	2.00	3.60	10.35	..	15.95
Western Australia	..	..	517.00	..	..	..	29.00	29.50	575.50
Tasmania ..	..	..	31.63	..	..	..	17.06	..	48.69
Total ..	28.83	158.59	763.01	4.40	21.44	3.60	831.74	29.50	1,841.11
ALL RAILWAYS.									
New South Wales	45.00	5,215.80	79.68	..	..	..	36.51	..	5,376.99
Victoria ..	4,134.87	..	..	15.40	121.90	..	12.48	..	4,284.65
Queensland ..	..	..	5,978.81	..	26.44	..	941.44	..	6,946.69
South Australia	1,123.60	597.36	1,721.35	..	2.00	3.60	10.35	..	3,458.26
Western Australia	..	453.94	4,333.58	..	..	..	29.00	29.50	4,846.02
Tasmania ..	..	..	789.62	..	..	..	50.63	..	840.25
Federal Territory	..	4.94	..	..	..	..	..	..	4.94
Northern Territory	..	..	198.68	..	..	..	..	..	198.68
GRAND TOTAL ..	5,303.47	6,272.04	13,101.72	15.40	150.34	3.60	1,080.41	29.50	25,956.48

(B) Federal Railways.

1. **General.**—On the 1st January, 1911, the Commonwealth Government took over the Northern Territory from the South Australian Government, and at the same time the railways from Darwin to Pine Creek in the Northern Territory, and from Port Augusta to Oodnadatta in South Australia, came under its control. Subsequently, the construction of a transcontinental line from Port Augusta in South Australia, to Kalgoorlie in Western Australia, was undertaken by the Commonwealth Government, while a line has been constructed in the Federal Territory, connecting Canberra with the New South Wales railway system at Queanbeyan. In 1917 an Act was passed by which all the Federal railways are vested in a Commonwealth Railway Commissioner.

2. **Trans-Australian Railway (Kalgoorlie to Port Augusta).**—A Federal Act passed in 1907 provided for the expenditure of a sum of £20,000 for a preliminary survey of a railway line connecting Western Australia with the eastern States. This survey was commenced in 1908, and completed in March, 1909. The route via Tarcoola was, for several reasons, chosen in preference to that via Gawler Range and Fowler's Bay. The estimated cost of construction and equipment of the line on the basis of a 4-ft. 8½-in. gauge, from Port Augusta in South Australia to Kalgoorlie in the Western Australian goldfields, a distance of 1,063 miles, was £4,045,000. In September, 1911, a Bill was introduced into the Commonwealth Parliament to authorise the construction of the line, and it became law in December following. In South Australia an Act was passed enabling the Commonwealth to acquire lands for the railway in South Australia not exceeding one-eighth of a mile wide on either side of the line, but no town lands are to be included at any time. In Western Australia, an Act was also passed by which all necessary lands are to be granted to the Commonwealth for railway purposes. A Railway Construction Department was created by the Federal Government to carry out the work, which was commenced at Port Augusta in September, 1912. On 12th September the ceremony of cutting the first sod was performed at Port Augusta by the Governor-General, Lord Denman, in the presence of a representative gathering, and on the 12th February, 1913, a like ceremony was performed at Kalgoorlie by the Prime Minister of the Commonwealth (the Right Hon. Andrew Fisher), and the line was thus commenced at both ends.

On the 17th October, 1917, the eastern and western divisions met at 621 miles 58 chains ex Kalgoorlie, and railway communication between Western Australia and the eastern States was established.

In the issue of the Year Book for 1918 (No. 11, pp. 663 to 666 and p. 1213) a short description was given of the country through which the line passes between Kalgoorlie and Port Augusta, together with particulars of the rate of construction, permanent way, water supply, rolling stock, etc.

On the 22nd October, 1917, the first through train left Port Augusta with an official party on board for Kalgoorlie. It should be mentioned that owing to deviations from the original route, the length of this line was reduced from 1,063.39 miles to 1,051.30 miles, a saving of 12.09 miles.

3. ***Oodnadatta Railway.***—This line was taken over by the Commonwealth Government from 1st January, 1911, but was held under lease by the South Australian Government until 31st December, 1913. From the 1st January, 1914, the line has been worked by the South Australian Government for and on behalf of the Commonwealth. It is provided in the Northern Territory Acceptance Act that the Commonwealth shall annually reimburse the State with the interest payable on the amount of loans raised by the State for the purpose of constructing the railway, and the agreement for working the line prescribes that the Commonwealth is responsible to the State for any financial loss incurred by the State in the working and management of the railway, but is entitled to receive from the State any profit made in such working and management.

4. **Federal Territory Railway—Queanbeyan-Canberra.**—This line was built by the Railway Construction Branch of the Public Works Department, New South Wales, and was completed and taken over by the Chief Commissioner of Railways for that State, who has since worked the line for and on behalf of the Commonwealth Government. The line was opened for departmental goods traffic on 25th May, 1914. It connects with the New South Wales railway system at Queanbeyan, is 4.94 miles in length, and has sidings of an aggregate length of 2.00 miles.

5. Northern Territory Railway (Darwin to Katherine).—On the 1st January, 1911, the line from Darwin to Pine Creek came under the jurisdiction of the then Department of External Affairs, and was worked under the Administrator of the Northern Territory. As mentioned above, the management of this railway is now vested in the Commonwealth Railway Commissioner.

In the Northern Territory Acceptance Act, the construction of a transcontinental line from South Australia is provided for. The extension of the line from Pine Creek to Katherine River has been completed, and the first train ran through to Emungalen (Katherine River) on 13th May, 1917.

6. Summary of Federal Railways.—The following table shews the railway lines open for traffic under the control of the Commonwealth Government at 30th June, 1920, together with the lines which have been or are being surveyed :—

FEDERAL GOVERNMENT RAILWAYS, 30th JUNE, 1920.

Terminals.	Miles.
OPEN FOR TRAFFIC.	
Trans-Australian—Port Augusta to Kalgoorlie	1,051.30
Port Augusta to Oodnadatta (South Australia)	477.96
Canberra to Queanbeyan (Federal Territory)	4.94
Darwin to Emungalen, Katherine River (Northern Territory)	198.68
Total opened for traffic	1,732.88
SURVEYED, OR BEING SURVEYED.	
Katherine River to Mataranka (Northern Territory)	65.44
Mataranka to Daly Waters (Northern Territory)	95.00
Kingoonya to Boorthanna (South Australia)	176.44
Canberra to Jervis Bay (Federal Territory)	140.22
Canberra (Federal Territory) to Federal Territory Border in the direction of Yass (New South Wales)	11.67
Daly Waters (Northern Territory) to Oodnadatta (South Australia) ..	851.50
Port Augusta to Crystal Brook (South Australia)	69.25
Total surveyed or being surveyed	1,409.52

7. Mileage open for traffic, Average miles worked and Train miles run.—The following table shews the length of the Federal railways open for traffic, average miles worked, and the train miles run in the years 1916 to 1920:—

FEDERAL RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, AVERAGE MILES WORKED AND TRAIN MILES RUN, 1916 TO 1920.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
MILES OPEN FOR TRAFFIC.					
	Miles.	Miles.	Miles.	Miles.	Miles.
1916	773	478	5	146	1,402
1917	958	478	5	200	1,641
1918	1,051	478	5	200	1,734
1919	1,051	478	5	200	1,734
1920	1,051	478	5	199	1,733

FEDERAL RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, AVERAGE MILES WORKED AND TRAIN MILES RUN, 1916 TO 1920—*continued.*

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
			AVERAGE MILES WORKED.		
	Miles.	Miles.	Miles.	Miles.	Miles.
1916	668	478	5	146	1,297
1917	865	478	5	187	1,535
1918	1,051	478	5	200	1,734
1919	1,051	478	5	200	1,734
1920	1,051	478	5	199	1,733
			TRAIN MILES RUN.		
1916	622,919	276,690	1,080	52,424	953,113
1917	570,493	254,927	1,169	87,652	914,241
1918	475,936	259,838	1,127	112,648	849,549
1919	368,886	221,763	1,015	83,209	674,873
1920	401,709	262,917	1,000	60,348	725,974

8. **Cost of Construction and Equipment of Federal Railways.**—In the following table particulars are given of the cost of construction and equipment for traffic of the undermentioned railways for each of the years 1915–16 to 1919–20 :—

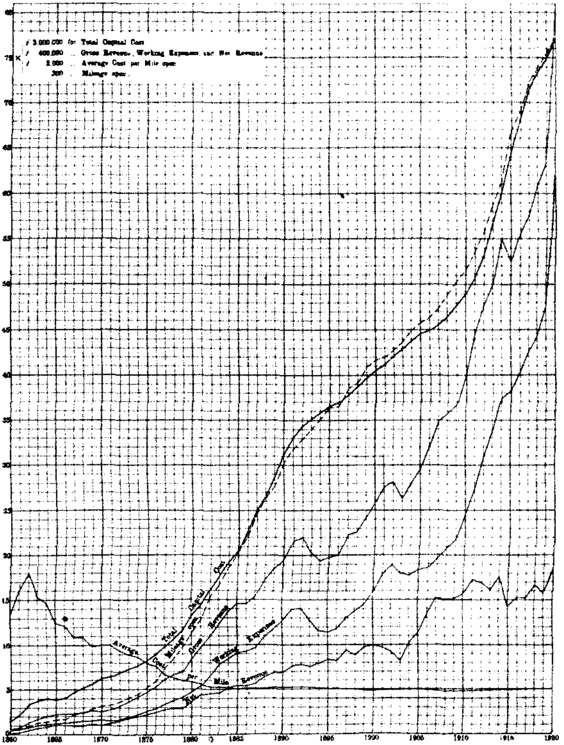
FEDERAL RAILWAYS.—CAPITAL COST OF CONSTRUCTION AND EQUIPMENT, 1916 TO 1920.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	*Oodnadatta.* (a)	Federal Territory. (b)	Northern Territory.	
		TOTAL COST OF CONSTRUCTION AND EQUIPMENT OF LINES OPEN.			
	£	£	£	£	£
1916	4,747,062	2,158,355	47,103	1,055,754	8,008,274
1917	6,079,313	2,281,271	52,591	1,664,370	10,077,545
1918	6,674,278	2,281,939	47,883	1,695,556	10,699,656
1919	6,911,624	2,282,973	48,124	1,707,392	10,950,113
1920	7,053,900	2,282,934	48,144	1,709,932	11,094,910
			COST PER MILE OPEN.		
1916	6,141	4,515	9,421	7,231	5,712
1917	6,353	4,773	10,651	8,340	6,141
1918	6,349	4,774	9,693	8,496	6,171
1919	6,574	4,776	9,742	8,556	6,316
1920	6,710	4,776	9,746	8,607	6,402

(a) Exclusive of Rolling Stock the property of South Australian Government Railways.
(b) Exclusive of Rolling Stock the property of New South Wales Government Railways.

9. **Gross Revenue.**—(i) *Total, per average mile worked, and per train mile run.* The following table shows the total revenue from all sources, the revenue per average mile worked and the revenue per train mile run for each of the undermentioned railways for the financial years from 1916 to 1920 inclusive :—

GRAPHS SHEWING THE FINANCIAL POSITION OF THE GOVERNMENT RAILWAYS OF THE COMMONWEALTH, 1860 TO 1920.



(See page 584.)

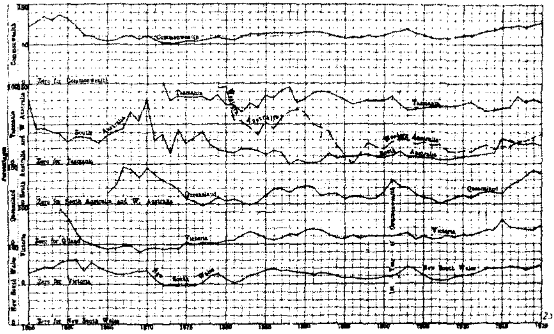
EXPLANATION OF GRAPHS.—In the above diagram the base of each small square represents throughout one year. The significance of the vertical height of each square varies, however, according to the nature of the several curves.

In the heavy curve denoting the total capital cost of the railways of the Commonwealth, the vertical side of each square denotes £3,000,000.

In the three lighter curves, representing (i) gross revenue, (ii) working expenses, and (iii) net revenue, the vertical height of each small square denotes £400,000. For the curve of average cost per mile open, *the vertical side of the small square denotes £2,000. The mileage open* is shewn by a dotted curve, the vertical side of each square representing 300 miles.

For the curves shewing the percentage of working expenses to gross revenue, and the percentage of net revenue to capital cost, see graphs on pages 573 and 574 respectively.

GRAPHS SHEWING PERCENTAGES OF WORKING EXPENSES TO GROSS REVENUE OF GOVERNMENT RAILWAYS FOR STATES AND COMMONWEALTH, 1855 TO 1920.

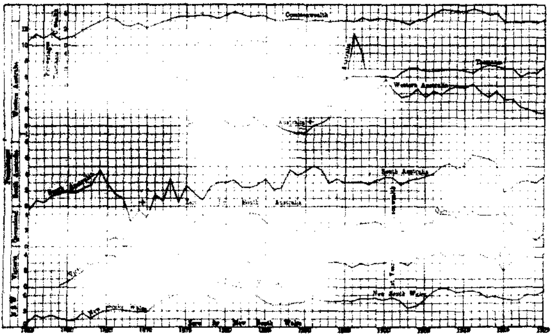


(See page 591.)

EXPLANATION OF GRAPHS.—In the above diagram the base of each small square represents throughout one year. The vertical side of a small square denotes throughout 10 per cent., the heavy zero lines being different for each State and the Commonwealth, with, however, one exception, viz., that the zero line for South Australia and Western Australia is identical.

The curve for New South Wales commences in 1855; that for Victoria commences in 1859; that for *Queensland in 1865; that for Tasmania in 1872; and that for Western Australia in 1879, these being the* years in which the Government railway systems of the several States were inaugurated.

GRAPHS SHEWING PERCENTAGES OF NET REVENUE TO CAPITAL COST OF GOVERNMENT RAILWAYS OF STATES AND COMMONWEALTH, 1855 TO 1920.



(See page 593.)

EXPLANATION OF GRAPHS.—In the above diagram the base of each small square represents throughout one year. The vertical side of a small square denotes 1 per cent., the thick zero lines, however, for each State and for the Commonwealth being different. This is necessary to avoid confusion of the curves.

Where the curve for any State falls below that State's zero line, loss is indicated, the working expenses having exceeded the gross revenue.

The curve for New South Wales commences in 1855; that for Victoria commences in 1859; that for Queensland in 1865; that for Tasmania in 1872; and that for Western Australia in 1879, these being the years in which the Government railway systems of the several States were inaugurated.

FEDERAL RAILWAYS.—GROSS REVENUE, TOTAL, PER AVERAGE MILE WORKED AND PER TRAIN MILE RUN, 1916 TO 1920.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
TOTAL GROSS REVENUE.					
	£	£	£	£	£
1916	273,959	64,518	1,040	31,518	371,035
1917	290,750	66,429	592	28,695	386,466
1918	175,039	69,231	705	32,511	277,486
1919	175,134	58,286	407	32,237	266,064
1920	213,388	74,709	571	27,089	315,757
GROSS REVENUE PER AVERAGE MILE WORKED.					
1916	410	135	208	216	286
1917	336	139	120	153	252
1918	166	145	141	163	160
1919	167	122	82	162	153
1920	203	156	116	136	182
GROSS REVENUE PER TRAIN-MILE RUN.					
	d.	d.	d.	d.	d.
1916	105.55	55.96	231.11	144.29	93.43
1917	122.32	62.54	121.54	78.57	101.45
1918	88.27	63.95	150.13	69.27	78.39
1919	113.94	63.08	96.24	92.98	94.62
1920	127.49	68.25	137.04	107.73	104.39

(ii) *Coaching, Goods, and Miscellaneous Receipts, and Percentages on total Revenue.* The gross revenue is composed of (*a*) receipts from coaching traffic, including the carriage of mails, horses, parcels, etc., by passenger trains; (*b*) receipts from the carriage of goods and live stock and (*c*) rents and miscellaneous items. The subjoined table shews the gross revenue for 1916 to 1920 classified according to the three chief sources of receipts, together with their percentages on the total revenue. The respective totals of the three items have already been given in the preceding paragaph.

FEDERAL RAILWAYS.—COACHING, GOODS, AND MISCELLANEOUS RECEIPTS, AND PERCENTAGES ON TOTAL REVENUE, 1916 TO 1920.

Year ended 30th June.	Receipts.					Percentages.				
	Railway.				Total.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory	Northern Territory		Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory	
COACHING TRAFFIC RECEIPTS.										
	£	£	£	£	£	%	%	%	%	%
1916 ..	3,582	14,501	37	4,633	22,753	1.31	22.48	3.56	14.70	6.13
1917 ..	4,411	15,447	39	5,412	25,309	1.52	23.25	6.59	18.86	6.55
1918 ..	72,352	14,586	31	5,341	92,310	41.33	21.07	4.40	16.43	33.27
1919 ..	93,867	12,455	34	5,250	111,606	53.60	21.37	8.25	16.28	41.95
1920 ..	95,671	10,600	15	4,433	110,719	44.83	14.19	2.63	16.36	35.07
GOODS AND LIVE STOCK RECEIPTS.										
1916 ..	249,129	48,482	1,003	16,735	315,349	90.94	75.14	96.44	53.10	84.99
1917 ..	271,013	48,026	553	17,152	336,744	93.21	72.30	93.41	59.77	87.13
1918 ..	77,339	51,213	674	19,539	148,765	41.19	73.97	95.60	60.10	53.61
1919 ..	50,485	43,194	373	19,676	113,728	28.83	74.11	91.75	61.04	42.74
1920 ..	82,490	61,401	453	14,930	159,274	38.67	82.19	79.33	55.12	50.44
MISCELLANEOUS RECEIPTS.										
1916 ..	21,248	1,535	..	10,150	32,933	7.75	2.38	..	32.20	8.88
1917 ..	15,328	2,956	..	6,131	24,413	5.27	4.45	..	21.37	6.32
1918 ..	25,348	3,432	..	7,631	36,411	14.48	4.96	..	23.47	13.12
1919 ..	30,783	2,636	..	7,311	40,730	17.57	4.52	..	22.68	15.31
1920 ..	35,227	2,708	103	7,726	45,764	16.50	3.62	18.04	28.52	14.49

10. Working Expenses.—(i) *Total.* The following table shews the total annual expenditure on (*a*) maintenance of ways, works and buildings; (*b*) locomotives, carriages and wagons repairs and renewals, (*c*) traffic expenses, and (*d*) compensation, general and miscellaneous charges, and the percentages of the total of those expenses upon the corresponding gross revenues of each railway for each year 1916 to 1920:—

FEDERAL RAILWAYS.—TOTAL WORKING EXPENSES, AND PERCENTAGES OF WORKING EXPENSES ON GROSS REVENUE, 1916 TO 1920.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
	TOTAL WORKING EXPENSES.				
	£	£	£	£	£
1916	273,959	95,069	1,638	47,953	418,619
1917	290,750	102,298	1,446	39,771	434,265
1918	232,468	100,179	1,496	53,482	387,625
1919	243,988	111,362	1,288	50,617	407,255
1920	256,028	112,191	802	48,616	417,637
	PERCENTAGE OF WORKING EXPENSES ON REVENUE.				
	%	%	%	%	%
1916	100.00	147.35	157.50	152.14	112.82
1917	100.00	153.99	244.26	138.00	112.37
1918	132.81	144.70	212.20	164.50	139.69
1919	139.31	191.06	316.45	157.02	153.07
1920	119.98	150.17	140.46	179.47	132.26

(ii) *Working Expenses per average mile worked and per train-mile run.* The following table shews the working expenses per average mile worked and per train-mile run for each railway for the years 1916 to 1920:—

FEDERAL RAILWAYS.—WORKING EXPENSES PER AVERAGE MILE WORKED AND PER TRAIN MILE RUN, 1916 TO 1920.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
	WORKING EXPENSES PER AVERAGE MILE WORKED.				
	£	£	£	£	£
1916	410	199	328	328	323
1917	336	214	293	212	263
1918	221	198	299	267	220
1919	232	233	261	254	235
1920	243	235	162	245	241
	WORKING EXPENSES PER TRAIN-MILE RUN.				
	d.	d.	d.	d.	d.
1916	105.55	82.46	364.00	219.53	105.41
1917	122.32	96.31	296.87	108.90	114.00
1918	117.23	87.25	318.58	113.95	107.89
1919	158.74	120.52	304.55	145.99	145.00
1920	152.96	102.41	192.40	193.34	138.07

(iii) *Distribution of Working Expenses.* The subjoined table shews the distribution of working expenses among four chief heads of expenditure for the years 1916 to 1920 :—

FEDERAL RAILWAYS.—DISTRIBUTION OF WORKING EXPENSES, 1916 TO 1920.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
			MAINTENANCE.		
	£	£	£	£	£
1916	66,820	38,742	942	25,201	131,705
1917	69,232	46,921	768	18,858	135,779
1918	64,990	39,673	609	23,699	128,971
1919	71,309	45,284	601	21,500	138,694
1920	72,197	43,967	553	20,664	137,381
			LOCOMOTIVE, CARRIAGE, AND WAGON CHARGES.		
1916	156,818	45,672	389	16,738	219,617
1917	179,817	44,487	361	15,983	240,648
1918	121,574	42,582	544	22,309	187,009
1919	118,163	52,377	351	20,796	191,687
1920	119,753	53,437	196	19,841	193,227
			TRAFFIC EXPENSES.		
1916	47,211	9,106	307	3,942	60,566
1917	37,808	9,295	317	4,930	52,350
1918	41,022	10,400	343	5,704	57,469
1919	47,572	11,471	336	7,104	66,483
1920	54,606	12,803	52	6,881	74,342
			OTHER CHARGES.		
1916	3,110	1,549	..	1,982	6,641
1917	3,893	1,595	..	..	5,488
1918	4,882	1,804	..	1,769	8,455
1919	6,944	2,230	..	1,217	10,391
1920	9,471	1,985	..	1,231	12,687

11. **Passenger Journeys and Tonnage of Goods and Live Stock.**—In the next table particulars are given of the passenger journeys, and tonnage of goods and live stock carried on the Federal Railways during the years 1916 to 1920 :—

FEDERAL RAILWAYS.—PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK CARRIED, 1916 TO 1920.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
			PASSENGER JOURNEYS.		
	No.	No.	No.	No.	No.
1916	7,667	(a)	1,079	4,718	(b) 13,464
1917	4,160	(a)	1,578	8,034	(b) 13,772
1918	17,934	(a)	300	11,546	(b) 29,780
1919	23,942	51,516	93	5,842	81,393
1920	22,968	55,742	..	4,818	83,528
			TONNAGE OF GOODS AND LIVE STOCK CARRIED.		
	tons.	tons.	tons.	tons.	tons.
1916	248,744	(a)	12,114	30,007	(b) 290,865
1917	583,250	(a)	6,586	27,529	(b) 617,365
1918	124,806	(a)	7,261	40,862	(b) 172,929
1919	116,971	57,565	4,385	35,124	214,045
1920	53,722	94,892	4,691	23,122	176,427

(a) Not available. (b) Exclusive of Oodnadatta line.

12. **Number and Description of Rolling Stock, 1920.**—The following table shews the numbers of locomotives and rolling stock in use on the Federal railways, classified according to gauge :—

FEDERAL RAILWAYS.—CLASSIFICATION OF LOCOMOTIVES AND ROLLING STOCK, 1919–20.

Railway.	Locomotives.			Passenger Vehicles.			Vehicles other than Passenger.		
	Gauge. 4 ft. 8½ in.	Gauge. 3 ft. 6 in.	Total.	Gauge. 4 ft. 8½ in.	Gauge. 3 ft. 6 in.	Total.	Gauge. 4 ft. 8½ in.	Gauge. 3 ft. 6 in.	Total.
Trans-Australian	70	..	70	33	..	33	746	..	746
Oodnadatta (a)	..	1	1	..	..	..	..	31	31
Federal Territory (b) ..	..	..	..	..	..	..	..	..	..
Northern Territory ..	..	13	13	..	4	4	..	311	311
Total ..	70	14	84	33	4	37	746	342	1,088

(a) Worked by South Australian Government Railways. (b) Worked by New South Wales Government Railways.

13. ***Number of Railway Employees.**—The following table shews the number of* employees on the Federal railways at 30th June in each year, 1916 to 1920 inclusive, *classified according to salaried and wages staffs :—*

FEDERAL RAILWAYS.—NUMBER OF EMPLOYEES ON RAILWAYS, 1916 TO 1920.

Railway.	30th June— 1916. Salaried Staff.	1916. Wages Staff.	1917. Salaried Staff.	1917. Wages Staff.	1918. Salaried Staff.	1918. Wages Staff.	1919. Salaried Staff.	1919. Wages Staff.	1920. Salaried Staff.	1920. Wages Staff.
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Trans-Australian	82	878	157	2,981	201	913	194	846	184	798
Oodnadatta ..	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Federal Territory	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Northern Territory	11	120	16	161	12	164	20	150	12	79
Total ..	93	1,002	173	3,142	213	1,077	214	996	196	877

(a) Worked by South Australian Government Railways.
(b) Worked by New South Wales Government Railways.

14. **Accidents.—Number of Killed and Injured.**—The subjoined table gives particulars of the number of persons killed and injured through train accidents and the movement of rolling stock in each year ended 30th June, 1916 to 1920, on the Federal railways :—

FEDERAL RAILWAYS.—TOTAL NUMBER OF PERSONS KILLED AND INJURED ON FEDERAL RAILWAYS, 1916 TO 1920.

Railway.	*1916.*	*1917.*	*1918.*	*1919.*	*1920.*
NUMBER OF PERSONS KILLED.					
Trans-Australian	1	1	3	3	2
Oodnadatta	..	..	1	..	..
Federal Territory	..	..	..	..	..
Northern Territory	1	..	..	..	..
Total	2	1	4	3	2
NUMBER OF PERSONS INJURED.					
Trans-Australian	16	37	139	104	42
Oodnadatta	6	4	12	8	12
Federal Territory	..	..	..	..	..
Northern Territory	1	2	7	3	8
Total	23	43	158	115	62

15. Passenger Fares, Goods Rates, and Parcel Rates.—(i) *Passenger Fares.* In the following table the fares for certain specified distances on the Trans-Australian, Oodnadatta, and Northern Territory Railways are set out :—

FEDERAL RAILWAYS.—ORDINARY PASSENGER MILEAGE RATES, 1920.

Single Fare for a Journey of—	Trans-Australian Railway.				Oodnadatta Railway.				Northern Territory Railway.			
	First Class.		Second Class.		First Class.		Second Class.		First Class.		Second Class.	
	Fare.	Average per Passenger Mile.	Fare.	Average per Passenger Mile.	Fare.	Average per Passenger Mile.	Fare.	Average per Passenger Mile.	Fare.	Average per Passenger Mile.	Fare.	Average per Passenger Mile.
Miles.	s. d.	d.	s. d.	d.	s. d.	d.	s. d.	d.	s. d.	d.	s. d.	d.
50	8 4	2.00	5 7	1.34	9 9	2.34	6 6	1.56	10 5	2.50	7 0	1.68
100	16 8	2.00	11 1	1.33	19 6	2.34	13 0	1.56	20 10	2.50	13 10	1.66
200	33 4	2.00	22 3	1.34	39 0	2.34	26 0	1.56	41 8	2.50	27 10	1.67
300	50 0	2.00	33 4	1.33	58 6	2.34	39 0	1.56	..	..	..	..
400	64 7	1.94	43 1	1.29	77 9	2.33	52 0	1.56	..	..	..	..
500	77 1	1.85	51 5	1.23	..	..	..	..	..	..	..	..
600	89 7	1.79	59 9	1.20	..	..	..	..	..	..	..	..
700	102 1	1.75	68 1	1.17	..	..	..	..	..	..	..	..
800	110 5	1.66	73 8	1.11	..	..	..	..	..	..	..	..
900	117 9	1.57	78 6	1.05	..	..	..	..	..	..	..	..
1,000	122 11	1.48	81 11	0.98	..	..	..	..	..	..	..	..
1,051	125 0	1.43	83 4	0.95	..	..	..	..	..	..	..	..

In the case of the Trans-Australian railway, through passengers have to pay for sleeping berths and meals in addition to the ordinary fares. For the first class sleeping berths the charge is twelve shillings and sixpence for a night or part of a night, the corresponding charge for the second class being eight shillings. There is a fixed scale of charges made in respect of the meals served to other than through passengers between Port Augusta and Kalgoorlie. It will be observed that both the first and second class fares on the Trans-Australian railway have a constant rate for distances up to 300 miles and then have a tapering character beyond that distance; while those for the Oodnadatta and the Northern Territory railways are practically uniform for all distances.

(ii) *Goods Rates.* The rates for agricultural produce and ordinary goods on the Trans-Australian and Northern Territory railways are set out in the following tables :—

FEDERAL RAILWAYS.—RATES FOR AGRICULTURAL PRODUCE IN TRUCK LOADS, 1920.

For a haul of—	Northern Territory Railway.		Trans-Australian Railway.		For a haul of—	Trans-Australian Railway, contd.	
	Rate per Ton in Truck Loads.	Average per Ton Mile.	Rate per Ton in Truck Loads.	Average per Ton Mile.		Rate per Ton in Truck Loads.	Average per Ton Mile.
	s. d.	d.	s. d.	d.		s. d.	d.
50 miles ..	8 8	2.08	6 11	1.66	600 miles ..	38 4	0.77
100 " ..	15 3	1.83	12 2	1.46	700 " ..	42 6	0.73
200 " ..	19 3	1.16	15 5	0.93	800 " ..	46 8	0.70
300 " ..	..	..	21 8	0.87	900 " ..	50 5	0.67
400 " ..	..	..	27 6	0.83	1,000 " ..	53 9	0.65
500 " ..	..	..	33 4	0.80	1,051 " ..	55 0	0.63

FEDERAL RAILWAYS.—ORDINARY GOODS MILEAGE RATES, 1920.

For a Haul of—	Northern Territory Railway. Class of Freight. Highest. Rate per Ton.	Average per Ton Mile.	Lowest. Rate per Ton.	Average per Ton Mile.	Trans-Australian Railway. Class of Freight. Highest. Rate per Ton.	Average per Ton Mile.	Lowest. Rate per Ton.	Average per Ton Mile.	For a Haul of—	Trans-Australian Railway, contd. Class of Freight. Highest. Rate per Ton.	Average per Ton Mile.	Lowest. Rate per Ton.	Average per Ton Mile.
Miles.	s. d.	d.	s. d.	d.	s. d.	d.	s. d.	d.	Miles.	s. d.	d.	s. d.	d.
50	39 5	9.46	8 9	1.62	31 6	7.56	5 5	1.30	600	223 9	4.48	38 4	0.77
100	71 11	8.63	10 11	1.31	57 3	6.90	8 9	1.05	700	239 5	4.10	42 6	0.73
200	133 2	7.99	19 3	1.16	106 6	6.39	15 5	0.93	800	255 0	3.83	46 8	0.70
300	..	..	..	..	143 0	5.72	21 8	0.87	900	269 1	3.59	50 5	0.67
400	..	..	..	..	172 2	5.17	27 6	0.83	1,000	281 7	3.38	53 9	0.65
500	..	..	..	..	201 4	4.83	33 4	0.80	1,051	287 0	3.28	55 0	0.63

In the above tables it will be seen that the average rates per ton-mile are of a tapering character.

(iii) *Parcel Rates.* On the Trans-Australian railway, parcels weighing between 85 and 112 lbs. are taken by passenger train 500 miles for thirteen shillings and threepence.

(C) State Railways.

1. Mileage Open, 1916 to 1920.—The following table shews the length of State railways open for traffic on the 30th June in the years 1916 to 1920:—

STATE RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, 1916 TO 1920.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1916	4,188	4,100	4,967	2,187	3,332	562	19,336
1917	4,437	4,123	5,214	2,221	3,425	581	20,001
1918	4,678	4,152	5,295	2,242	3,491	588	20,446
1919	4,825	4,190	5,469	2,290	3,538	601	20,913
1920	5,015	4,214	5,685	2,333	3,538	629	21,414

The following statement shews the actual mileage opened for traffic in the year 1919–20, and also the annual average increase in mileage opened since 1910 in each State:—

STATE RAILWAYS.—MILEAGE OPENED ANNUALLY.

Mileage.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Total all States.
Mileage opened during 1919–20	190.66	24.48	215.65	43.21	..	27.16	501.16
Average annual mileage increase in 10 years to 30th June, 1920 ..	125.81	69.05	181.72	87.57	116.27	15.84	596.26

(i) *New South Wales.* During the year ended 30th June, 1920, the following lines were opened for traffic:—Kempsey to Macksville (29.94 miles); Picton-Mittagong Deviation (27.65 miles); Menindie to Broken Hill (73.65 miles); Craboon to Coolah (23.75 miles); Henty to Rand (32.81 miles); Penrith to Weatherboard (3.03 miles) Picton to Mittagong (0.41 miles). These, less reduction of 0.58 miles on Broken Hill-Tarrawingee lines, make a total of 190.66 miles.

(ii) *Victoria.* The following lines were opened for traffic during 1919–20:—Piangil to Tank (15.87 miles); and Mittyack to Kulwin (8.61 miles); a total of 24.48 miles.

(iii) *Queensland.* The increase of 215.65 miles in the mileage opened for traffic in 1919–20 was due to the opening of the following lines:—Samsonvale to Kobble (2.82 miles); Cotton Vale to Amiens (12.31 miles); Orallo to Injune (32.69 miles); Bambaroo to Toobanna (10.73 miles); Toobanna to Ingham (4.92 miles); North Coast Junction to Innisfail Junction (0.91 miles); Moolaba to Daradgee (8.95 miles); a total of 73.33 miles; and to the acquisition of the line from Almaden to Forsyth (Etheridge Railway), 142.32 miles.

(iv) *South Australia.* During the year 1919–20 the line from Monarto to Sedan (43.21 miles) on the 5 ft. 3 in. gauge was opened for traffic.

(v) *Western Australia.* There were no additional new lines opened during the year 1919–20.

(vi) *Tasmania.* During the year 1919–20 the line from Stanley to Trowutta (28.54 miles) was opened for traffic, and the extension from Abattoirs to Zinc Works (0 62 miles) was completed and taken over.

2. Average Mileage Worked, Train Miles Run, Number of Passenger Journeys, and Tonnage of Goods and Live Stock Carried on State Government Railways.—The table on page 580 gives the total mileage open for traffic at the end of each financial year, but, in considering the returns relating to revenue and expenditure, and other matters, it is desirable to know the average number of miles actually worked during each year. The next table shews the average number of miles worked, the total number of train miles run, the number of passenger journeys, and the tonnage of goods and live stock carried by the Government railways of each State during the years 1916 to 1920 inclusive:—

STATE RAILWAYS.—AVERAGE MILEAGE WORKED, TRAIN MILES RUN, NUMBER OF PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK CARRIED, 1916 TO 1920.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania. (a)	All States.
			AVERAGE MILEAGE WORKED.				
1916 ..	4,169	3,955	4,939	2,185	3,332	552	19,182
1917 ..	4,313	4,104	5,067	2,193	3,370	577	19,624
1918 ..	4,551	4,139	5,281	2,235	3,463	591	20,260
1919 ..	4,737	4,159	5,324	2,285	3,507	599	20,611
1920 ..	4,966	4,194	5,635	2,316	3,538	635	21,284
			TRAIN MILES RUN.				
1916 ..	21,556,034	13,826,538	11,571,746	5,630,984	5,140,289	1,051,511	58,786,102
1917 ..	20,300,717	14,022,040	10,729,187	5,730,539	4,500,211	1,080,459	56,363,153
1918 ..	18,143,287	13,626,371	10,319,694	5,440,515	4,094,510	1,058,373	52,680,730
1919 ..	19,935,202	13,031,655	9,942,744	5,412,924	4,250,627	1,107,890	53,687,042
1920 ..	22,834,889	15,022,465	10,443,619	5,192,038	4,851,448	1,266,625	59,611,082
			NUMBER OF PASSENGER JOURNEYS.				
1916 ..	92,850,838	115,771,238	24,438,905	20,512,756	18,884,541	2,078,228	274,536,506
1917 ..	96,709,846	108,341,540	24,837,714	18,107,015	17,466,744	1,971,888	267,434,747
1918 ..	94,304,516	105,753,073	25,682,368	18,936,104	16,081,695	1,874,029	262,631,785
1919 ..	98,568,768	111,904,786	26,414,817	20,176,544	17,325,424	1,889,102	276,279,441
1920 ..	114,654,660	134,012,162	28,177,817	22,852,116	18,411,231	2,267,856	320,375,842
			TONNAGE OF GOODS AND LIVE STOCK CARRIED.				
1916 ..	11,915,500	5,829,885	4,570,888	2,396,938	2,554,858	388,782	27,656,796
1917 ..	11,732,864	5,962,602	4,035,379	2,822,401	2,400,246	401,076	27,354,566
1918 ..	11,293,060	6,231,693	4,154,441	2,767,734	2,259,070	407,405	27,112,803
1919 ..	12,714,012	6,515,470	3,783,334	2,618,510	2,379,403	472,926	28,483,655
1920 ..	13,293,528	7,770,694	3,790,881	2,578,908	2,613,606	575,169	30,622,786

(a) The average mileage worked in some cases is greater than the actual mileage open, owing to the fact that the Government railways have running powers over certain private lines.

3. Length and Gauge of Railway Systems in each State.—A map shewing the various Commonwealth and State owned railway lines, is given on page 571. In all the States the Government railways are grouped, for the convenience of administration and management, into several divisions or systems. A summary shewing concisely the gauge and length of the main and branch lines included in each division or system of the different States of the Commonwealth for the year ended the 30th June, 1918, was given in Year Book No. 12, pp. 646 and 651 to 653. Owing to limitations of space this information for the year ended 30th June, 1920, is not included in the present volume, but may be found in Transportation Bulletin No. 12 to be issued by this Bureau.

4. Administration and Control of State Railways.—In each State of the Commonwealth the policy has been established that the railways should be under the control of the Government. This policy, as has been shewn, was adopted early in the railway history of Australia, and, excepting in cases presenting unusual circumstances, may be regarded as the settled policy of the country. In earlier issues of the Year Book (see No. 6, p. 693) will be found a description of the methods adopted by the various State Governments in the control and management of their railways.

5. Lines under Construction, and Lines Authorised, 1920.—The following statement gives particulars up to the 30th June, 1920, of the mileage of State railways (*a*) under construction, and (*b*) authorised for construction but not commenced :—

STATE RAILWAYS.—MILEAGE UNDER CONSTRUCTION AND AUTHORISED. 30th JUNE, 1920.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	All States.
Mileage under construction	*a* 627.13	92.45	*b* 590.00	77.63	113.25	33.37	1,533.83
Mileage authorised but not commenced ..	100.02	20.00	1,429.00	264.75	92.50	..	1,906.27

(*a*) Exclusive of 182.58 miles on which work was suspended.
(*b*) Exclusive of 97.00 miles on which work has been suspended.

(i) *Lines under Construction.* In spite of the great extension of State railways which has taken place since the year 1875 throughout the Commonwealth, there are still, in some of the States, tracts of country of immense area which are as yet practically undeveloped, and in which little in the nature of permanent settlement has been accomplished. The general policy of the States is to extend the existing lines inland, in the form of light railways, as settlement increases, and although it is true that lines which were not likely to be commercially successful in the immediate future have been constructed from time to time for the purpose of encouraging settlement, the general principle that the railways should be self-supporting is kept in view.

(*a*) In *New South Wales* the lines under construction consist of 312 miles of "pioneer lines" built to afford railway communication over level country suitable for settlement by returned soldiers. In addition there are 200 miles of a more expensive character passing through mountainous districts. The line from Coff's Harbour to Glenreagh (26.40 miles) will form part of the North Coast Railway, which will eventually be connected with Brisbane. The line from Molong to Dubbo (79.94 miles) will assist in the development of the Western system. Other lines under construction are Humula to Tumbarumba (28.01 miles); Nimmitabel to Bombala (37.85 miles); Binnaway to Werris Creek (90.86

miles); Coonabarabran to Burren Junction (95.37 miles); Griffith to Hillston (62.18 miles); Barmedman to Rankin's Springs (70.90 miles); Yanco to Griffith (33.00 miles); Gilmore to Batlow (22.00 miles); Canowindra to Eugowra (26.70 miles); Westmead to Dural (1.50 miles); Glenreagh to Dorrigo (44.25 miles); Regent's Park to Cabramatta and Enfield (8.15 miles).

The following lines have been partly constructed, but further work is at present suspended :—Trida to Menindee (155.70 miles); Macksville to Raleigh (20.68 miles); Sydenham to Botany (6.20 miles); a total distance of 182.58 miles.

(*b*) *Victoria.* In this State the following lines were under construction by the Board of Land and Works on the 30th June, 1920 :—*5-ft. 3-in. gauge:* Beetomba to Cudgewa (9.91 miles); Cavendish to Balmoral (25.29 miles); Koo-wee-rup to McDonald's Track (30.75 miles); Manangatang to Bryden's Tank (14.25 miles); and Alberton to Won Wron (12.25 miles), making in all 92.45 miles.

(*c*) *Queensland.* In December, 1910, the North Coast Railway Act was passed. Under this Act a series of lines, when constructed, will link up a number of existing lines in such a way that a through line will be obtained from Rockhampton to Cairns, via Mackay and Townsville, a total distance of 630 miles. By the completion of this line it will be possible to travel from Cairns to the southern border of the State at Wallangarra, a total distance of about 1,250 miles. At the same time the Great Western Railway Act was passed. Under this Act provision is made for the extension in a westerly or south-westerly direction of the lines already constructed to Quilpie, Yaraka, Winton, and Dajarra, in such a manner that they will form junctions with a line to be made running north-westerly from Eromanga to Camooweal. These extensions, together with the north-westerly line, will make an aggregate distance of 990 miles to be constructed. With the completion of both these schemes, the railways of this State will be brought into direct communication with each other on both their east and west boundaries. On the 30th June, 1920, the following lines, of an aggregate length of 590 miles, were under construction :—Southern Division—Samsonvale to Dayboro (7 miles); Goondoon to Kalliwa (31 miles); Murgon to Proston (26 miles); Cotton Vale to Soldiers' Settlement (12 miles); Oralla to Injune (33 miles). Central Division—Longreach to Winton (109 miles); Styx to St. Lawrence (19 miles); Yaraka to Powell's Creek (27 miles). Northern Division—Merinda to Bowen Coal Fields (50 miles); Tarzali to Millaa Millaa (8 miles); *Mount Molloy Extension (7 miles); Koumala to St. Lawrence (58 miles); Farleigh to* Proserpine (68 miles); Bambaroo to Cardwell (48 miles); Moolaba to Tully River (46 miles); Dajarra to Moonah Creek (41 miles). The following lines were under construction during the year, but work was suspended :—Kalbar to Mount Edwards (10 miles); Tara to Surat (50 miles); and Winton to 37-Mile (37 miles); a total of 97 miles.

(*d*) *South Australia.* In this State the lines under construction on the 30th June, 1920, were as follow :—Clare to Spalding (23.63 miles), and Wandana to Penong (54.00 miles), an aggregate distance of 77.63 miles.

(*e*) In *Western Australia* the following lines were in course of construction by the Public Works Department on the 30th June, 1920 :—Esperance northward (60 miles), and Narembeen to Merredin (53.25 miles), a total distance of 113.25 miles.

(*f*) *Tasmania.* At 30th June, 1920, the following lines were under construction :—Myalla to Stanley (27.14 miles); Irishtown to Smithton (5.61 miles); and Ulverstone to Ulverstone Wharf (0.62 mile); a total of 33.37 miles.

(ii) *Lines Authorised for Construction.* (*a*) *New South Wales.* At the 30th June, 1920, the following lines had been authorised for construction but not commenced :—Gilgandra to Collie (21.51 miles); Roslyn to Taralga (15.82 miles); Grafton to South Grafton with bridge over Clarence River (2.34 miles); Tarana to Oberon (16.00 miles); Rock to Pulletop (25.00 miles); Ballina to Buyong (12.50 miles); Richmond to Kurrajong (6.85 miles); a total distance of 100.02 miles.

(b) In *Victoria* the following lines were authorised, but their construction had not been commenced up to the end of June, 1920:—*5-ft. 3-in. gauge:* Merbein to Yelta (10 miles), and Bittern to Red Hill (10 miles), a total of 20.00 miles.

(c) *Queensland.* In addition to the new lines upon which work has been commenced, Parliament has also authorised the construction of the following parts of the Great Western Railway: Section A, from Quilpie to Eromanga (120 miles); Section B, from Powell's Creek (224 miles); Section C, from 37 miles to Springvale (324 miles); and Section D, from Moonah Creek (217 miles); and on the North Coast Railway, Section E, from Tully River southwards to Cardwell (24 miles). The following lines were also authorised for construction: Branch to Windora (12 miles); Inglewood to Texas and Silverspur (44 miles); Mount Edwards to Maryvale (28 miles); Lanefield to Rosevale (17 miles); Gatton to Mount Sylvia (11 miles); Juandah to Taroom (42 miles); Dirranbandi extension (52 miles); Mundubbera to the Northern Burnett (32 miles); Yarraman to Nanango (16 miles); Brooloo to Kenilworth (10 miles); Many Peaks to northern end of approved line from Mundubbera to Northern Burnett (79 miles); Monte and Rannes to open up Callide Valley and Prairie Land (110 miles); Gargett to Owens Creek (6 miles); Dobbyn to Myally Creek (50 miles); Peeramon towards Boonjee (11 miles); a total of 1,429 miles.

(d) In *South Australia*, Parliament has authorised the construction of lines on the 5-ft. 3-in. gauge (i) from Paringa to Renmark, a distance of 2.50 miles, and (ii) from Long Plains to Red Hill, a distance of 61 miles, and on the 3-ft. 6-in. gauge from Kielpa to Mangalo Hall (26.25 miles). The latter line, however, cannot be proceeded with except by resolution of both Houses of Parliament. The conversion of certain 3-ft. 6-in. gauge lines in the north-west of the State to 5-ft. 3-in. gauge has also been authorised. About 175 miles of line are involved in this scheme.

(e) In *Western Australia* the following lines were authorised for construction up to the 30th June, 1920:—Busselton-Margaret River (37.75 miles), Dwarda-Narrogin (33 miles), and Nyabing-Pingerup (21.75 miles), a distance of 92.50 miles.

(f) In *Tasmania* there were no lines authorised for construction which were not being proceeded with at the 30th June, 1920.

6. Cost of Construction and Equipment of State Railways.—The total cost of construction and equipment of the State railways of Australia at the 30th June, 1920, amounted to £220,020,822, or to an average cost of £10,275 per mile open for traffic. Particulars as to the capital expenditure incurred in each State on lines open for traffic are given in the following table:—

STATE RAILWAYS.—MILEAGE AND COST TO 30th JUNE, 1920.

State.	Length of Line Open (Route).	Total Cost of Construction and Equipment.	Average Cost per Mile Open.	Cost per Head of Population.	Mileage per 1,000 of Population.
	Miles.	£	£	£	Miles.
New South Wales (a) ..	5,015.32	79,318,917	15,815	39.09	2.47
Victoria	4,214.00	(b) 58,287,897 (b)	13,832	38.75	2.80
Queensland	5,685.10	40,005,868	7,037	54.27	7.71
South Australia (a) ..	2,333.19	(c) 19,105,510 (c)	8,188	40.44	4.94
Western Australia (a)..	3,538.23	18,062,354	5,105	54.05	10.59
Tasmania	628.70	5,240,276	8,344	24.19	2.90
All States ..	21,414.54	220,020,822	10,275	41.56	4.04

(a) Exclusive of Federal railways.
(b) Exclusive of cost of line from Murrayville to South Australian border (12.53 miles).
(c) Exclusive of cost of line from Mount Gambier to Victorian border (11.79 miles).

It will be seen that the lowest average cost per mile open, £5,105, is in Western Australia, which is slightly less than one-third of the highest average cost, namely, £15,815 in New South Wales, compared with an average of £10,275 for all the State Government railways. In Western Australia there have been comparatively few engineering difficulties to contend with; moreover, the system was adopted in several instances in that State of giving contractors the right to carry traffic during the period of their contracts, with the result that, at least in all goldfields railway contracts, the cost of construction was considerably lessened.

In the above table the figures relating to cost of construction and equipment do not include the discounts and flotation charges on loans allocated to the railways. This will explain the reason for the differences between the amounts shewn above for Queensland and South Australia and those shewn in the railway reports for those States.

(i) *Reduction of Cost per Mile in Recent Years.* The average cost per mile of the lines constructed lately in the Commonwealth is very much less than the figure given in the above table, in consequence of the construction of light "pioneer" lines, which have already been referred to, and which it was originally considered in New South Wales could be laid down at a cost of £1,750 per mile (exclusive of stations and bridges). It should also be remembered that in the early days of railway construction there were considerable engineering difficulties to overcome, and that labour was scarce and dear. Since 1892 many hundreds of miles of "pioneer" lines have been opened in New South Wales, the average cost ranging from about £2,000 to £7,500 per mile, according to the difficulties met in the country traversed. The lowest cost per mile for any line previously constructed had been that of the line from Nyngan to Cobar and the Peak, the average cost of which, to the end of June, 1919, was £3,786. In Victoria also the cost of construction has been greatly reduced in recent years. The total cost to the 30th June, 1920, of the narrow gauge (2 ft. 6 in.) lines, having a length of one hundred and twenty-two miles, was only £342,142, which gives an average cost per mile of only £2,807. In the other States the cost of construction per mile has been similarly reduced by building light railways as cheaply as possible. Fairly substantial permanent way is laid down with reduced ballast, and, as settlement progresses and traffic increases, the road is strengthened, and the stations and siding accommodation enlarged. The subjoined table gives examples of some of the more expensive lines, most of which were built in the early days of railway construction in Australia:—

STATE RAILWAYS.—EXAMPLES OF LINES CONSTRUCTED AT LARGE CAPITAL EXPENDITURE PER MILE OPEN.

Line.	Gauge.	Length.			Total Cost.	Average Cost per Mile.	Date of Opening.
		Double Lines and over.	Single Line.	Total.			
	ft. in.	Miles.	Miles.	Miles.	£	£	
NEW SOUTH WALES—							
Penrith to Bathurst ..	4' 8½	88.50	22.55	111.05	4,133,414	37,221	1876
Sydney to Nowra	4 8½	39.90	57.79	97.69	4,467,067	45,727	1887
Homebush to Waratah ..	4 8½	95.71	..	95.71	3,559,024	37,185	1889
VICTORIA—							
Melbourne to Bendigo ..	5 3	100.89	..	100.89	4,952,521	49,088	1862
North Geelong to Ballarat ..	5 3	41.45	11.98	53.43	1,960,540	36,694	1862

The next table gives instances of lines which have been constructed in more recent years at a comparatively small cost per mile.

The average cost per mile of the 458.77 miles comprised in the above table was £41,573, whereas the average cost of the 351.24 miles referred to in the next table was £1,916.

STATE RAILWAYS.—EXAMPLES OF LINES CONSTRUCTED AT SMALL CAPITAL EXPENDITURE PER MILE OPEN.

Line.	Gauge.		Length.	Total Cost.	Average Cost per Mile.	Date of Opening.
	ft.	in.	Miles.	£	£	
NEW SOUTH WALES—						
Parkes to Condobolin ..	4	8½	62.75	132,917	2,118	1898
Burren Junction to Pokataroo ..	4	8½	42.55	104,509	2,455	1906
VICTORIA—						
Wangaratta to Whitfield ..	2	6	30.49	40,135	1,316	1899
Wycheproof to Sea Lake ..	5	3	47.89	85,532	1,786	1895
Ultima to Chillingollah ..	5	3	20.14	34,402	1,708	1909
QUEENSLAND—						
Dalby to Bell	3	6	23.50	38,567	1,641	1906
Mahar to Jandowae	3	6	28.24	61,307	2,171	1914
SOUTH AUSTRALIA—						
Wandilo to Glencoe	3	6	9.13	11,740	1,287	1904
Tailem Bend to Pinnaroo ..	5	3	86.55	164,027	1,895	1906

The comparisons afforded in the two preceding tables are subject to certain limitations, inasmuch as the cost is naturally greater in the case of the older lines. Further, the *figures given represent the cost of construction only (i.e., exclusive of cost of equipment)*, and cannot therefore be directly compared with the average cost per mile open given in the table on page 584.

(ii) *Capital Cost of Construction and Equipment, Total and per Mile Open.* The increase in the total capital cost of construction and equipment of Government railways in each State for each year from 1916 to 1920 is shewn in the following table :—

STATE RAILWAYS.—CAPITAL COST OF CONSTRUCTION AND EQUIPMENT, 1916 TO 1920.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
			TOTAL COST OF LINES OPEN.				
	£	£	£	£	£	£	£
1916 ..	68,825,592	54,428,148	34,787,623	17,236,543	17,118,195	4,798,646	197,194,747
1917 ..	72,006,621	55,652,275	36,476,000	17,687,344	17,466,802	4,913,395	204,202,437
1918 ..	75,050,450	*a*56,535,414	37,301,889	*b*17,974,348	17,760,566	4,979,399	(*a*, *b*)209,602,066
1919 ..	76,601,591	*a*57,403,576	38,244,494	*b*18,649,979	17,995,941	5,076,014	(*a*, *b*)213,971,595
1920 ..	79,318,917	*a*58,287,897	40,005,868	*b*19,105,510	18,062,354	5,240,276	(*a*, *b*)220,020,822
			COST PER MILE OPEN.				
1916 ..	16,434	13,275	7,004	7,881	5,188	8,534	10,198
1917 ..	16,229	13,498	6,996	7,964	5,100	8,447	10,210
1918 ..	16,042	(*a*)13,659	7,045	(*b*) 8,058	5,087	8,470	(*a*, *b*)10,263
1919 ..	15,877	(*a*)13,743	6,992	(*b*) 8,186	5,066	8,488	(*a*, *b*)10,248
1920 ..	15,815	(*a*)13,832	7,087	(*b*) 8,188	5,105	8,344	(*a*, *b*)10,275

(*a*) Exclusive of cost of line from Murrayville to South Australian border (12.53 miles).
(*b*) Exclusive of cost of line from Mount Gambier to Victorian border (11.79 miles).

(iii) *Loan Expenditure on Railways.* The subjoined table shews the total loan expenditure on Government railways (including lines both open and unopen) in each State, except Tasmania, and on Government railways and tramways in the latter State for the years 1915–16 to 1919–20 :—

STATE RAILWAYS.—LOAN EXPENDITURE, 1916 TO 1920.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas. (a)	All States.
	£	£	£	£	£	£	£
1916 ..	4,787,669	2,440,317	2,034,614	929,143	414,026	233,601	10,839,370
1917 ..	3,706,422	1,266,352	1,342,249	413,095	308,027	133,056	7,169,201
1918 ..	2,294,547	761,705	984,147	500,441	181,394	55,561	4,777,795
1919 ..	1,441,105	878,384	1,416,302	324,041	154,720	39,165	4,253,717
1920 ..	2,436,991	1,283,210	2,356,498	236,925	78,901	91,221	6,483,746

(a) Including tramways.

The following statement shews the total loan expenditure on railways to the 30th June, 1920 :—

STATE RAILWAYS.—TOTAL LOAN EXPENDITURE IN EACH STATE TO 30th JUNE, 1920.

State ..	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.(a)	All States.
	£	£	£	£	£	£	£
Expenditure	83,814,832	56,806,206	42,211,195	21,199,834	17,412,211	5,506,086	227,041,354

(a) Including tramways.

7. **Gross Revenue; Total, per Average Mile Worked, and per Train-mile Run.**—The following table shews the total revenue from all sources, the revenue per average mile worked, and the revenue per train-mile run in each State during each financial year from 1916 to 1920 inclusive :—

STATE RAILWAYS.—GROSS REVENUE, TOTAL, PER AVERAGE MILE WORKED, AND PER TRAIN-MILE RUN, 1916 TO 1920.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
			TOTAL GROSS REVENUE.				
	£	£	£	£	£	£	£
1916	8,006,078	5,705,163	3,745,850	1,965,410	2,088,110	348,028	21,858,189
1917	8,380,084	5,952,719	3,831,967	2,273,530	1,877,882	340,505	22,656,187
1918	8,954,880	6,562,259	4,023,921	2,331,549	1,816,888	356,785	24,045,782
1919	9,958,173	6,432,277	3,984,597	2,391,409	1,872,897	401,364	25,040,717
1920	13,083,847	8,224,972	4,960,150	2,726,540	2,291,876	506,177	31,793,562
			GROSS REVENUE PER AVERAGE MILE WORKED.				
	£	£	£	£	£	£	£
1916	1,920	1,443	758	899	627	680	1,142
1917	1,943	1,450	756	1,037	557	591	1,155
1918	1,968	1,585	762	1,043	525	604	1,166
1919	2,102	1,547	748	1,047	534	670	1,215
1920	2,635	1,961	880	1,177	648	797	1,494
			GROSS REVENUE PER TRAIN-MILE RUN.				
	d.	d.	d.	d.	d.	d.	d.
1916	89.14	99.08	77.68	83.77	97.22	79.48	89.24
1917	90.07	101.69	85.72	95.22	100.12	75.64	96.47
1918	118.46	115.68	93.58	102.85	106.47	81.06	109.55
1919	119.88	118.46	96.18	106.03	105.40	86.95	111.94
1920	137.51	131.40	113.99	126.68	118.38	95.91	127.80

8. **Coaching, Goods, and Miscellaneous Receipts.**—The gross revenue is composed of (*a*) receipts from coaching traffic, including the carriage of mails, horses, parcels, etc., by passenger trains; (*b*) receipts from the carriage of goods and live stock; and (*c*) rents and miscellaneous items. The subjoined table shews the gross revenue for 1916 to 1920, classified according to the three chief sources of receipts. The total of the three items specified has already been given in the preceding paragraph.

STATE RAILWAYS.—COACHING, GOODS, AND MISCELLANEOUS RECEIPTS. 1916 TO 1920.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
			COACHING TRAFFIC RECEIPTS.				
	£	£	£	£	£	£	£
1916 ..	3,574,063	3,003,263	1,339,753	721,555	646,566	179,784	9,464,984
1917 ..	3,637,656	2,918,557	1,308,896	739,483	607,537	171,220	9,383,349
1918 ..	3,932,936	3,254,274	1,396,803	819,197	617,606	177,854	10,198,670
1919 ..	3,978,180	3,241,194	1,392,476	807,747	637,851	188,329	10,245,777
1920 ..	5,714,131	4,205,420	1,833,349	1,130,659	764,872	236,763	13,885,194
			GOODS AND LIVE STOCK TRAFFIC RECEIPTS.				
1916 ..	4,329,971	2,610,210	2,364,364	1,211,465	1,356,452	156,860	12,029,322
1917 ..	4,542,619	2,934,259	2,433,868	1,502,363	1,176,058	158,162	12,747,329
1918 ..	4,652,113	3,137,547	2,510,564	1,480,469	1,105,836	168,095	13,060,024
1919 ..	5,583,982	2,957,789	2,483,698	1,536,209	1,127,539	203,412	13,892,629
1920 ..	6,807,792	3,721,122	3,000,829	1,556,224	1,394,908	261,657	16,742,532
			MISCELLANEOUS RECEIPTS.				
1916 ..	102,044	91,690	41,233	32,390	85,092	11,384	363,833
1917 ..	(*a*)199,809	99,903	89,203	31,684	93,787	11,123	525,509
1918 ..	(*a*)369,831	170,438	110,554	31,883	92,946	10,786	786,438
1919 ..	(*a*)396,011	233,294	108,423	47,453	107,507	9,623	902,311
1920 ..	(*a*)561,924	(*b*)298,430	125,972	39,657	132,096	7,757	1,165,836

(*a*) Including Refreshment Rooms, 1917, £102,875; 1918, £274,699; 1919, £289,810; and 1920, £426,323. (*b*) Including Refreshment Rooms, 1920, £105,619.

(i) *New South Wales.* The total earnings for the year 1919–20 amounted to £13,083,847, an increase of £3,125,674 as compared with the previous year. Increases of £1,735,951, £1,223,810, and £165,913 took place in the coaching traffic, goods and live stock traffic, and miscellaneous respectively.

(ii) *Victoria.* In Victoria, traffic receipts shewed increases as compared with previous year of £964,226, £763,333, and £65,136 in coaching traffic, goods and live stock traffic, and miscellaneous respectively.

(iii) *Queensland.* In Queensland, there were increases in 1919–20 of £440,873, £517,131, and £17,549 in respect of coaching traffic, goods and live stock traffic, and miscellaneous respectively.

(iv) *South Australia.* In this State there were increases of £322,912 and £20,015 in coaching traffic and goods and live stock receipts respectively, and a decrease of £7,796 in miscellaneous receipts, the net increase for the year 1919–20 being £335,131 in advance of the receipts for the previous year.

(v) *Western Australia.* In this State the earnings in 1919–20 shewed an increase of £418,979 as compared with 1918–19. There were increases of £127,021, £267,369, and £24,589 in the coaching traffic, goods and live stock traffic, and miscellaneous receipts respectively.

(vi) *Tasmania.* The gross revenue in 1919–20 shewed an increase of £104,813 as compared with the previous year. In the coaching traffic and goods and live stock traffic receipts there were increases of £48,434 and £58,245 respectively, and a decrease of £1,866 in the miscellaneous receipts.

The following table shews for the two years 1918–19 and 1919–20 the percentage which each class of receipts bears to the total gross revenue :—

STATE RAILWAYS.—PERCENTAGE OF REVENUES FROM VARIOUS SOURCES ON TOTAL REVENUE, 1919 and 1920.

Particulars.	1918–19.						
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Coaching	39.95	50.39	34.95	33.78	34.06	46.92	40.92
Goods and live stock ..	56.07	45.98	62.33	64.24	60.20	50.68	55.48
Miscellaneous	3.98	3.63	2.72	1.98	5.74	2.40	3.60

Particulars.	1919–20.						
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Coaching	43.67	51.13	36.96	41.46	33.38	46.78	43.67
Goods and live stock ..	52.03	45.24	60.50	57.08	60.86	51.68	52.66
Miscellaneous	4.30	3.63	2.54	1.46	5.76	1.54	3.67

9. **Coaching Traffic Receipts per Average Mile Worked, and per Passenger-train Mile.**—The subjoined table shews the receipts from coaching traffic per average mile of line worked, and per passenger-train mile, in each State and for all States for the year ended the 30th June, 1920 :—

STATE RAILWAYS.—COACHING TRAFFIC RECEIPTS PER MILE WORKED, AND PER PASSENGER-TRAIN MILE, 1919–20.

State.	Number of Passenger-Train Miles.(a)	Coaching Traffic Receipts.		
		Gross.	Per Average Mile Worked.	Per Passenger-Train Mile.
	No.	£	£	d.
New South Wales	11,136,399	5,714,131	1,150	123.14
Victoria	7,946,315	4,205,420	1,003	127.01
Queensland	3,588,375	1,833,349	325	122.61
South Australia	2,576,017	1,130,659	488	104.11
Western Australia	1,978,379	764,872	216	92.78
Tasmania	472,158	236,763	372	120.34
Total	27,697,643	13,885,194	652	120.31

(a) The returns include the undermentioned mixed-train mileage, which has been divided between passenger-train miles and goods-train miles in the proportion of one-third and two-thirds respectively in the case of the following States :—

New South Wales	1,615,909	Western Australia ..	1,026,294
Victoria	2,528,602	Tasmania	709,830

The preceding table shews that, amongst the States, there is a considerable difference in the amount of the average receipts per average mile worked. In this respect New South Wales shews the maximum of £1,150, while Western Australia has a minimum of £216, the average for all States being £652. In the case of the receipts per passenger-train mile the maximum occurs in Victoria with 127.01 pence, and the minimum in Western Australia, 92.78 pence, the average for all States being 120.31 pence.

With regard to the number of passenger journeys in the various States, it will be seen from the table on page 581 *ante* that there has been a preponderance in favour of Victoria for years past, though it was a declining one during the years 1915 to 1918. In the year 1919–20, however, there was an increase over the two previous years.

This preponderance in Victoria is accounted for, to a great extent, by the large number of metropolitan suburban passengers in that State. Of the total number of passengers carried in Victoria in 1919–20, 123,748,299 were metropolitan suburban passengers, *i.e.*, were carried between stations within twenty miles of Melbourne, while in New South Wales the number of suburban passenger journeys between stations within thirty-four miles of Sydney, including the Richmond line, and of Newcastle, including Greta, was 104,311,991. In Sydney a large proportion of the metropolitan suburban traffic is carried on the electric and steam tramways, the number of passenger journeys during the year 1919–20 being 269,255,935. In Melbourne, on the other hand, the number of passengers carried on the two cable tramway systems during the same period was 135,817,199 ; and the number carried on the St. Kilda-Brighton, Sandringham-Black Rock, Prahran-Malvern, Melbourne-Brunswick-Coburg, Hawthorn, and the North Melbourne tramways, 66,546,841, making a total of 202,364,040. This matter is referred to hereinafter. (See sub-section 14.)

10. Goods and Live-Stock Traffic Receipts per Mile Worked, per Goods-train Mile, and per Ton Carried.—The following table shews the gross receipts from goods and live-stock traffic per mile worked, per goods-train mile, and per ton carried, for the year ended the 30th June, 1920 :—

STATE RAILWAYS.—GOODS AND LIVE-STOCK TRAFFIC RECEIPTS PER MILE WORKED, PER GOODS-TRAIN MILE, AND PER TON CARRIED, 1919–20.

State.	Number of Goods-Train Miles. (a)	Goods and Live-Stock Tonnage.	Goods and Live-Stock Traffic Receipts. Gross.	Per Average Mile Worked.	Per Goods-Train Mile.	Per Ton Carried.
	No.	Tons.	£	£	d.	d.
New South Wales ..	11,698,490	13,293,528	6,807,792	1,371	139.66	122.91
Victoria	7,076,150	7,770,694	3,721,122	887	126.21	114.92
Queensland ..	6,855,244	3,790,881	3,000,829	533	147.65	189.98
South Australia ..	2,616,021	2,578,908	1,556,224	672	142.77	144.81
Western Australia ..	2,873,067	2,613,606	1,394,908	394	116.52	128.09
Tasmania	794,467	575,169	261,657	412	79.04	109.18
Total ..	31,913,439	30,022,786	16,742,532	787	120.65	131.22

(a) The returns include the undermentioned mixed-train mileage, which has been divided between passenger-train miles and goods-train miles in the proportion of one-third and two-thirds respectively in the case of the following States :—

New South Wales	[illegible]	Western Australia ..	[illegible]
Victoria	[illegible]	Tasmania	[illegible]

From the preceding table it will be seen that the average cost of freight per ton ranges from 109.18 pence, in Tasmania to 189.98 pence in Queensland, the average for all States being 131.22 pence.

11. **Working Expenses.**—In order to make an adequate comparison of the working expenses of the Government railways in the several States, allowance should be made for the variation of gauges and of physical and traffic conditions, not only on the railways of the different States, but also on different portions of the same system. Where traffic is light, the percentage of working expenses is naturally greater than where traffic is heavy; and this is especially true in Australia, where ton-mile rates are in many cases based on a tapering principle—*i.e.*, a lower rate per ton-mile is charged upon merchandise from remote interior districts—and where on many of the lines there is but little back-loading. Further, though efforts have been made from time to time to obtain a uniform system of accounts in the several States, the annual reports of the Commissioners do not yet comprise fully comparable data of railway expenditure.

The following table shews the total annual expenditure, comprising expenses on (*a*) maintenance of way, works, and buildings; (*b*) locomotive power—repairs and renewals; (*c*) carriages and wagons—repairs and renewals; (*d*) traffic expenses; (*e*) compensation; and (*f*) general and miscellaneous charges; and the percentage of the total of these expenses upon the corresponding gross revenues in each State for each year 1916 to 1920:—

STATE RAILWAYS.—TOTAL WORKING EXPENSES, AND PERCENTAGE OF WORKING EXPENSES ON GROSS REVENUE, 1916 TO 1920.

TOTAL WORKING EXPENSES.

Year ended 30th June.	N.S.W.	Victoria. (a)	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1916	5,661,168	3,997,412	2,745,061	1,545,469	1,511,655	248,651	15,709,436
1917	5,915,360	4,154,040	2,994,187	1,725,341	1,448,451	289,186	16,526,565
1918	5,940,447	4,451,092	3,410,157	1,747,055	1,451,334	277,952	17,278,037
1919	6,904,450	4,279,663	3,690,445	1,829,634	1,567,591	324,595	18,596,378
1920	9,570,983	6,058,912	4,323,392	2,007,361	2,000,473	390,191	24,351,312

PERCENTAGE OF WORKING EXPENSES ON GROSS REVENUE.

Year ended 30th June.	N.S.W.	Victoria. (a)	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	%	%	%	%	%	%	%
1916	70.71	70.07	73.29	76.63	72.39	71.45	71.87
1917	70.59	69.78	78.14	75.89	77.15	84.93	72.95
1918	66.34	67.83	84.75	74.93	79.90	77.92	71.85
1919	69.33	66.53	92.62	76.51	83.70	80.87	74.26
1920	73.15	73.66	87.16	73.62	87.29	77.08	76.59

(*a*) Including amounts paid for special and abnormal charges.

(i) *New South Wales.* In this State the total working expenses in 1919-20 amounted to £9,570,983, an increase of £2,666,533 as compared with the previous year. Part of this amount is due to the increase of 14.54 per cent. in the train mileage over that of the previous year (2,899,687 miles). There were several increases of wages to the staff under awards of the Court of Industrial Arbitration and also large increases in the prices paid for coal and other materials, all of which accounted for a sum of £1,427,446.

(ii) *Victoria.* In Victoria there was an increase of £1,779,249 in working expenses. This was partly due to increases in wages made by the Railway Classification Board, repayment to capital account in respect of sidings provided for the Victorian Wheat Commission and increased prices paid for coal, all of which accounted for a sum of £883,276.

(iii) *Queensland.* In this State the working expenses increased by £632,947, from £3,690,445 in 1918–19 to £4,323,392 in 1919–20. There were substantial increases to staff due to a new award (£290,861) and automatic increases (£32,500), as well as increases in the cost of fuel and other materials; but the main factor was the cost of working the Locomotive Branch, which was responsible for £350,638, or 55 per cent. of the total. The sum of £180,084 represented the excess over last year of repairs and renewals (including wages) to engines, carriages, and wagons. These repairs were long overdue, and had conditions been normal this expenditure would have been spread over a number of years commencing shortly after the outbreak of war.

(iv) *South Australia.* In South Australia the working expenses in 1919–20 shewed an increase of £177,727 over 1918–19, viz., from £1,829,634 to £2,007,361. This increase was due to the higher prices of stores used in maintenance, and for traffic purposes (£70,000), together with increased payment for wages under the Government Workers Tribunal award and the general application of the minimum wage.

(v) *Western Australia.* In this case the expenditure in 1919–20 was £432,882 greater than in the previous year. The train mileage run was 594,819 more than in the previous year, and the locomotive and rolling stock charges, maintenance, and traffic expenses were greater, mainly owing to the higher cost of stores.

(vi) *Tasmania.* In 1919–20 the working expenses were £65,596 higher than in the previous year. This was mainly owing to the increased salaries and wages paid, higher cost of material of all descriptions, and increase in train mileage of 158,735.

In the preceding table it will be observed that the percentages of the total working expenses to the total gross earnings of the State railways have varied but slightly during the period 1915 to 1920, the last year shewing the maximum rate, 76.59 per cent.

(vii) *Working Expenses per Average Mile Worked and per Train-mile Run.* The following table shews the working expenses per average mile worked and per train-mile run in each State for the years 1916 to 1920:—

STATE RAILWAYS.—WORKING EXPENSES PER AVERAGE MILE WORKED AND PER TRAIN-MILE RUN, 1916 TO 1920.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
			WORKING EXPENSES PER AVERAGE MILE WORKED.				
	£	£	£	£	£	£	£
1916	1,358	1,011	556	707	454	450	821
1917	1,372	1,012	591	787	430	502	842
1918	1,305	1,075	646	782	419	470	838
1919	1,457	1,029	693	801	447	542	902
1920	1,927	1,445	767	867	565	614	1,144
			WORKING EXPENSES PER TRAIN-MILE RUN.				
	d.	d.	d.	d.	d.	d.	d.
1916	63.03	69.39	56.93	65.87	70.45	56.75	64.14
1917	69.93	71.16	66.98	72.26	77.25	64.24	70.37
1918	78.58	78.40	79.31	77.07	85.07	63.15	78.72
1919	83.12	78.82	89.08	81.12	88.39	70.32	83.13
1920	100.59	96.80	99.35	92.79	98.96	73.93	98.04

12. **Distribution of Working Expenses.**—The subjoined table shews the distribution of working expenses, among four chief heads of expenditure, for the years 1916 to 1920:—

STATE RAILWAYS.—DISTRIBUTION OF WORKING EXPENSES, 1916 TO 1920.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
			MAINTENANCE.				
	£	£	£	£	£	£	£
1916	895,526	998,619	738,160	306,420	361,627	66,618	3,366,970
1917	932,990	927,815	774,833	391,334	349,714	82,571	3,458,757
1918	996,502	1,049,270	851,525	304,462	371,411	72,515	3,645,685
1919	1,126,118	870,123	904,199	338,785	411,986	87,902	3,739,113
1920	1,589,472	1,288,030	988,881	350,953	485,647	100,276	4,803,259
			LOCOMOTIVE, CARRIAGE, AND WAGON CHARGES.				
1916	2,917,299	1,747,319	1,198,160	859,334	714,802	108,887	7,545,801
1917	2,926,231	1,953,262	1,326,902	909,660	681,243	125,889	7,923,187
1918	2,755,183	2,042,846	1,515,121	982,298	656,576	125,190	8,077,214
1919	3,277,623	2,019,987	1,650,263	981,646	889,333	149,260	8,768,092
1920	4,603,775	2,785,614	2,000,901	1,101,629	927,130	185,576	11,604,634
			TRAFFIC EXPENSES.				
1916	1,638,942	1,127,568	744,229	350,472	393,033	58,571	4,312,815
1917	1,763,466	1,137,703	821,941	391,309	375,655	64,247	4,554,321
1918	1,727,861	1,225,479	974,513	426,775	379,991	63,728	4,798,347
1919	1,927,612	1,257,685	1,067,667	459,147	418,050	72,514	5,202,675
1920	2,535,813	1,820,588	1,251,192	495,700	529,802	87,786	6,720,881
			OTHER CHARGES.				
1916	209,401	123,906	64,512	29,263	42,193	14,575	483,850
1917	(a)292,673	135,760	70,511	33,038	41,689	16,479	590,300
1918	(a)460,901	133,497	68,998	33,520	43,356	16,519	756,791
1919	(a)573,097	131,888	68,316	50,036	48,222	14,919	886,498
1920	(a)841,923	(b)164,680	82,418	59,079	57,685	16,553	1,222,538

(a) Including Refreshment Rooms, 1917, £94,914; 1918, £236,063; 1919, £248,249; and 1920, £352,616. (b) Including Refreshment Rooms, £78,840.

13. **Net Revenue.**—The following table shews the net sums available to meet interest charges, also the percentage of such sums upon the capital cost of construction and equipment of lines opened for traffic in each State for the years 1916 to 1920:—

STATE RAILWAYS.—NET REVENUE AND PERCENTAGE OF NET REVENUE ON CAPITAL COST OF LINES OPEN, 1916 TO 1920.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
			NET REVENUE.				
	£	£	£	£	£	£	£
1916	2,344,910	1,707,751	1,000,289	419,921	576,455	99,377	6,148,703
1917	2,464,724	1,798,679	837,780	548,189	428,931	51,319	6,129,622
1918	3,014,433	2,111,167	618,764	584,494	365,054	78,783	6,767,695
1919	3,058,728	2,152,614	294,152	561,775	305,306	76,769	6,444,339
1920	3,512,863	2,166,060	636,758	719,180	291,403	115,986	7,442,250
			PERCENTAGE OF NET REVENUE ON CAPITAL EXPENDITURE.				
	%	%	%	%	%	%	%
1916	3.41	3.14	2.88	2.44	3.27	2.07	3.12
1917	3.42	3.23	2.30	3.19	2.46	1.04	3.00
1918	4.02	3.73	1.65	3.25	2.06	1.58	3.23
1919	3.99	3.75	0.77	3.01	1.70	1.51	3.01
1920	4.43	3.72	1.59	3.76	1.61	2.21	3.38

(i) *Net Revenue per Average Mile Worked and per Train-mile Run.* Tables shewing the gross earnings and the working expenses per average mile worked and per train-mile run have been given above. The net earnings, *i.e.*, the excess of gross earnings over working expenses, per average mile worked and per train-mile run are shewn in the following table:—

STATE RAILWAYS.—NET REVENUE PER AVERAGE MILE WORKED AND PER TRAIN-MILE RUN, 1916 TO 1920.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
			NET REVENUE PER AVERAGE MILE WORKED.				
	£	£	£	£	£	£	£
1916	562	432	202	192	173	180	321
1917	571	436	165	250	127	89	312
1918	663	510	116	261	105	133	328
1919	645	518	55	246	87	128	313
1920	708	516	113	311	82	183	350
			NET REVENUE PER TRAIN-MILE RUN.				
	d.	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*
1916	26.11	29.64	20.75	17.90	26.87	22.68	25.10
1917	29.14	30.79	18.74	22.06	22.87	11.40	26.10
1918	39.88	37.18	14.27	25.78	21.40	17.90	30.83
1919	36.76	39.64	7.10	24.91	17.21	16.63	28.81
1920	36.92	34.61	14.63	33.24	14.42	21.97	29.96

14. **Traffic Conditions.**—Reference has already been made to the difference in the traffic conditions on many of the lines of the Commonwealth (see sub-sections 9, 10, and 11 hereof). These conditions differ not only in the several States, but also on different lines in the same State, and apply to both passenger and goods traffic. By far the greater part of the population of Australia is confined to a fringe of country near the coast, more especially in the eastern and southern districts. A large proportion of the railway traffic between the chief centres of population is therefore carried over lines in the neighbourhood of the coast, and is thus, in some cases, open to sea-borne competition. *On most of the lines extending into the more remote interior districts traffic is light*; the density of population diminishes rapidly as the coastal regions are left behind; and there is a corresponding diminution in the volume of traffic, while, in comparison with other more settled countries, there is but little back-loading.

As an indication of the different traffic conditions prevailing in the several States, the following table is given shewing the numbers of passenger journeys and the tons of goods carried per 100 of mean population and per average mile worked in each State during the financial year 1919–20:—

STATE RAILWAYS.—PASSENGER JOURNEYS AND TONNAGE OF GOODS AND LIVE STOCK, 1919-20.

Particulars.		N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
				PER 100 OF MEAN POPULATION.				
Passenger journeys ..	No.	5,651	8,907	3,837	4,835	5,512	1,042	6,054
Goods and live stock	Tons	655	516	516	546	782	264	579
				PER AVERAGE MILE OF LINE WORKED.				
Passenger journeys ..	No.	23,087	31,953	5,008	9,867	5,203	2,570	15,052
Goods and live stock	Tons	2,676	1,852	672	1,118	788	805	1,485

Particulars of the actual numbers of passengers and tons of goods and live stock carried have already been given (see sub-section 2 hereof).

(i) *Metropolitan and Country Passenger Traffic.* A further indication of the difference in passenger traffic conditions might be obtained from a comparison of the volume of metropolitan, suburban, and country traffic in each State. Particulars are, however, available only for the States of New South Wales and Victoria. The subjoined table shews the number of metropolitan and country passengers carried in each of the States mentioned and the revenue derived therefrom during the year 1919-20 :—

STATE RAILWAYS.—METROPOLITAN, SUBURBAN, AND COUNTRY PASSENGER TRAFFIC, 1919-20.

Particulars.	Number of Passenger Journeys.			Revenue.		
	Metropolitan.	Country.	Total.	Metropolitan.	Country.	Total.
				£	£	£
N.S.W. ..	a104,311,991	10,342,669	114,654,660	1,690,621	3,446,626	5,137,247
Victoria ..	*b123,748,299*	*10,263,863*	*134,012,162*	*1,584,363*	*2,195,888*	*3,780,251*

(a) Within 34 miles of Sydney and Newcastle, including the Richmond line.
(b) Within 20 miles of Melbourne.

From this table it will be seen that the number of passenger journeys in country districts in Victoria was less than the corresponding number in New South Wales, while the number of metropolitan passenger journeys in Victoria was greater than in New South Wales, although in the latter State both Sydney and Newcastle are included. In Sydney a larger proportion of the suburban traffic is carried by the tramway systems than in Melbourne. The Sydney ferries also carry a large number of suburban passengers (see § 3. Tramways).

In previous issues of this work reference has been made to the scheme for the electrification of the suburban lines running out of Melbourne. Part of this scheme was brought into operation on the lines between Sandringham and Essendon, via Melbourne, on the 28th May, 1919, followed by the St. Kilda line on the 31st August, and the Port Melbourne line on the 26th October. It may be mentioned that the Melbourne suburban lines have a total length of 195.78 route miles, of which approximately 42 miles have been electrified. In Sydney, a Metropolitan Railway Construction Branch of the Railway Department has been created to deal specially with electrical transport in the city area. The Minister has approved of the construction of an underground city railway, and plans have been prepared and a commencement made with the preliminary works. The preliminary work in the location of a system of electric railways for the eastern, western, and northern suburbs has also been in hand, and good progress has been made with the remodelling of the tracks and the alteration to platform walls and lifting of floors of station buildings on the section between Sydney and Loftus.

The following lines have been converted and opened for traffic on dates as shewn, viz. :—Williamstown, 29th August, 1920 ; Coburg, 2nd December, 1920 ; Reservoir, 15th June, 1921 ; Heidelberg, 31st July, 1921 ; and the Essendon line extended to Broadmeadows on 4th September, 1921. It is expected that the lines to Dandenong and Frankston will be opened in 1922, whilst the Ringwood line and branches should be converted about the middle of 1923, when the scheme will be complete.

(ii) *Goods Traffic.* The differing conditions of the traffic in each State might also, to some extent, be analysed by an examination of the tonnage of various classes of commodities carried, and of the revenue derived therefrom. Comparative particulars regarding the quantities of some of the leading classes of commodities carried on the Government railways are available for all the States ; corresponding information regarding the revenue derived from each class of commodity is not, however, generally available in a comparable form. In this connexion it may be stated that the following resolution was passed at the Interstate Conference of Railway Commissioners held in Melbourne in May, 1909 :—"That in view of the variations in the character and classification of the goods traffic in the different States, the subdivisions of tonnage carried and revenue in each State shall be those which best suit local conditions."

The *following* table shews the number of tons of various representative commodities carried, and the percentage of each class on the total tonnage carried during the financial year 1919–20 :—

STATE RAILWAYS.—CLASSIFICATION OF COMMODITIES CARRIED, 1919–20.

State.	Minerals.	Fire-wood.	Grain and Flour.	Hay, Straw, and Chaff.	Wool.	Live Stock.	All other Com-modities.	Total.
				TONS CARRIED.				
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
New South Wales	*a*7,594,711	195,405	*c*764,457	564,461	117,171	900,933	2,873,026	*a*13,010,164
Victoria ..	*b*1,327,556	662,338	1,879,361	421,217	88,719	697,537	2,693,966	7,770,694
Queensland ..	1,168,727	249,919	*d*48,017	*f*231,565	61,253	416,076	1,615,324	3,790,881
South Australia	414,285	214,207	754,040	137,585	45,365	154,697	858,729	2,578,908
Western Australia	497,146	429,011	696,004	114,677	33,089	97,635	746,044	2,613,606
Tasmania ..	145,215	63,260	*e*	50,218	5,886	22,337	288,253	575,169
All States ..	11,147,640	1,814,140	4,141,879	1,519,723	351,483	2,289,215	9,075,342	30,339,422
				PERCENTAGE ON TOTAL TONNAGE CARRIED.				
	%	%	%	%	%	%	%	%
New South Wales	58.38	1.50	5.88	4.34	0.90	6.92	22.08	100.00
Victoria ..	17.08	8.52	24.19	5.42	1.14	8.98	34.67	100.00
Queensland ..	30.83	6.59	1.27	6.12	1.61	10.97	42.61	100.00
South Australia	16.06	8.31	29.24	5.33	1.76	6.00	33.30	100.00
Western Australia	19.02	16.41	26.63	4.39	1.27	3.74	28.54	100.00
Tasmania ..	25.25	11.00	*e*	8.73	1.02	3.88	50.12	100.00
All States ..	36.74	5.98	13.65	5.01	1.16	7.54	29.92	100.00

(*a*) Exclusive of 283,364 tons of coal on which only shunting and haulage were collected. (*b*) Coal, stone, gravel, and sand. (*c*) Up journey only (to coast). (*d*) Flour only. (*e*) Included in all other commodities. (*f*) Sugar-cane.

15. **Passenger-Mileage and Ton-Mileage.**—In earlier issues of the Year Book reference has been made to the resolution on the subject of passenger-mileage and ton-mileage statistics passed at the Interstate Conference of Railway Commissioners held in Melbourne in May, 1909 ; and to the Report [Cd. 4697] on the same subject by a Committee appointed by the President of the Board of Trade in the United Kingdom (see Year Book No. 10, p. 654).

In the Commonwealth, information regarding " passenger-miles " and " ton-miles " is available, either wholly or in part, for four of the States only, viz., New South Wales, South Australia, Western Australia, and Tasmania, but is not available at all for either Victoria or Queensland. Of the States which give particulars of the nature indicated, New South Wales furnishes the information in a classified form according to class of passengers and nature of commodities carried. South Australia supplies particulars for all classes of passengers and of goods together, and Tasmania supplies particulars for all classes of passengers together and a classification of nature of commodities carried. Western Australia furnished particulars as to ton-miles for the years 1907 to 1912, but no records were furnished for the period 1913 to 1917.

(i) *Passenger-Miles.* Particulars for the whole of the Commonwealth period regarding total " passenger-miles " are available for one State only, namely, Tasmania. For New South Wales, to the end of 1909–10, particulars are available for suburban and extended suburban traffic only—*i.e.*, for all stations within 34 miles of Sydney (including the Richmond line), and of Newcastle (including Greta), but since that date all passenger traffic is included. For South Australia particulars are available for each year since 1904. No particulars are available for other States. In the tables given below

the average number of passengers carried per "train" is obtained by dividing the number of "passenger-miles" by the number of "passenger-train-miles." Similarly, the "density of traffic" is obtained by dividing the number of "passenger-miles" by the "average miles worked."

STATE RAILWAYS.—SUMMARY OF "PASSENGER-MILES," 1916 TO 1920.

Year ended 30th June—	Passenger Train Mileage.	Number of Passenger Journeys.	Total Passenger-miles.	Amount Received from Passengers.	Average Number of Passengers carried per Train.	Average Mileage per Passenger-Journey.	Average Receipt per Passenger-mile.	Average Fare per Passenger-Journey.	Density of Traffic per Average Mile Worked.
	Miles. (,000 omitted.)	No. (,000 omitted.)	No. (,000 omitted.)	£	No.	Miles.	d.	d.	No.
				NEW SOUTH WALES.					
1916	10,283	92,851	1,321,491	3,147,041	129	12.85	0.57	8.13	316,980
1917	10,435	96,710	1,473,707	3,202,167	141	15.24	0.52	7.95	341,690
1918	9,441	94,305	1,384,766	3,473,340	147	14.67	0.60	8.84	304,277
1919	9,689	98,569	1,367,691	3,533,869	141	13.88	0.62	8.60	288,725
1920	11,136	114,655	1,632,627	5,137,247	147	14.24	0.74	10.75	328,761
				SOUTH AUSTRALIA.					
1916	2,786	20,513	218,609	603,203	78	10.66	0.66	7.06	100,050
1917	2,635	18,107	210,303	615,909	80	11.61	0.70	8.16	95,897
1918	2,597	18,936	234,197	703,221	90	12.37	0.72	8.91	104,786
1919	2,644	20,177	238,845	703,748	90	11.84	0.71	8.37	104,527
1920	2,576	22,852	305,834	979,596	119	13.38	0.77	10.29	132,052
				TASMANIA.					
1916	465	2,078	46,719	154,225	100	22.48	0.79	17.81	84,567
1917	471	1,972	40,164	145,941	85	20.37	0.87	17.76	69,607
1918	448	1,874	40,385	151,874	90	21.55	0.90	19.45	68,324
1919	448	1,889	39,961	167,035	89	21.15	1.00	21.22	67,713
1920	472	2,268	46,015	209,866	97	20.29	1.09	22.21	72,465

(ii) *Ton-miles.* Particulars regarding total "ton-miles" are available for each year since 1901 for the States of New South Wales, South Australia, and Tasmania. Corresponding particulars for Western Australia are available for the years 1907 to 1912, and for the years 1919 and 1920, but not for the intervening years. The average freight-paying load carried per "train" is obtained by dividing the total "ton-miles" in the fourth column by the "goods-train mileage" in the second column. In New South Wales the tonnage carried is exclusive of coal on which only shunting and haulage charges are collected, and the amount of earnings specified excludes terminals. In South Australia and Tasmania terminals are included.

STATE RAILWAYS.—SUMMARY OF "TON-MILES," 1916 TO 1920.

Year ended the 30th June—	Goods Train Mileage.	Total Tons Carried.	Total "Ton-miles."	Earnings.	Average Freight-paying Load carried per "Train."	Average Miles per Ton.	Earnings per "Ton-mile."	Density of Traffic per Average Mile Worked.
	No. (,000 omitted.)	No. (,000 omitted.)	No. (,000 omitted.)	£	Tons.	Miles.	d.	Tons.
				NEW SOUTH WALES. (a)				
1916	11,273	11,614	1,028,760	3,738,227	91.26	88.58	0.87	246,764
1917	9,866	11,468	1,136,485	3,936,039	115.19	99.10	0.83	263,502
1918	8,703	11,094	1,044,437	4,051,655	120.02	94.14	0.93	229,496
1919	10,246	12,469	1,237,806	4,889,343	120.80	99.27	0.95	261,306
1920	11,698	13,010	1,394,099	6,106,563	119.17	107.15	1.05	280,729
				SOUTH AUSTRALIA.				
1916	2,845	2,397	278,942	1,211,465	98.04	116.37	1.04	127,662
1917	3,095	2,822	298,442	1,502,363	96.41	105.74	1.21	136,089
1918	2,844	2,768	270,104	1,480,469	94.99	97.59	1.32	120,852
1919	2,769	2,619	263,984	1,536,209	95.33	100.81	1.40	115,529
1920	2,616	2,579	196,534	1,556,224	75.13	76.21	1.90	84,859
				WESTERN AUSTRALIA.				
1907	1,940	2,091	144,856	964,653	74.67	69.26	1.60	86,429
1912	2,747	2,542	184,748	1,154,087	67.25	72.67	1.49	77,767
1919	2,485	2,379	173,283	1,127,539	69.73	72.83	1.56	49,411
1920	2,873	2,614	207,384	1,394,908	72.18	79.34	1.61	58,616
				TASMANIA. (b)				
1916	586	367	20,105	145,094	34.29	54.81	1.73	36,392
1917	609	380	21,288	146,248	34.93	55.98	1.65	36,894
1918	609	389	21,539	153,577	35.39	55.42	1.71	36,444
1919	660	456	23,745	190,524	35.97	52.12	1.93	39,641
1920	794	575	30,967	234,147	38.99	56.01	1.81	48,767

(a) Exclusive of tonnage on which only shunting and haulage charges are collected.
(b) Exclusive of live stock.

(iii) *Classification of Commodity Ton-mileage.* As previously mentioned, New South Wales and Tasmania are the only States for which particulars specifying the ton-mileage and the earnings per ton-mile for various classes of commodities are available.

The subjoined statement gives particulars for the last financial year in respect of New South Wales. Miscellaneous traffic consists of timber, bark, bricks, drain-pipes in six-ton lots, and cement in full truck loads, agricultural and vegetable seeds in five-ton lots, and traffic of a similar nature. A and B classes consist of lime, vegetables, tobacco leaf, caustic soda and potash, copper ingots, fat and tallow, water and mining plant in six-ton lots, leather in one and three-ton lots, agricultural implements in five-ton lots, and other traffic of a similar nature. The table does not include 283,364 tons of coal on which only shunting and haulage charges were collected, nor does it include £117,158 for haulage, tonnage dues, etc.

NEW SOUTH WALES.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED 30th JUNE, 1920.

Particulars.	Total Tons Carried.	Total "Ton-miles."	Average Miles per Ton.	Earnings (exclusive of Terminals).	Earnings per "Ton-mile."	Per cent. on Total Tonnage.
	No.	No.	No.	£	d.	%
Coal, coke, and shale	6,504,641	353,074,118	54.28	897,251	0.61	50.00
Other minerals ..	938,574	59,820,157	63.74	149,596	0.60	7.21
Crude ores	151,496	19,943,250	131.64	53,655	0.64	1.16
Miscellaneous ..	1,086,816	131,998,296	121.45	476,977	0.87	8.35
Firewood	195,405	6,205,071	31.75	32,499	1.26	1.50
Fruit	126,900	26,119,289	205.83	123,488	1.13	0.98
Grain, flour, etc. (Up journey to coast) ..	764,457	158,676,661	207.57	348,540	0.53	5.88
Hay, straw, and chaff	564,461	181,230,680	321.07	340,506	0.45	4.34
Frozen meat ..	22,180	1,980,281	89.28	11,113	1.35	0.17
A class	750,834	96,351,640	128.33	531,504	1.32	5.77
B class	322,343	34,100,721	105.79	288,760	2.03	2.48
C class	50,421	4,433,462	87.93	59,191	3.20	0.39
1st class	247,162	18,489,915	74.81	270,963	3.52	1.90
2nd class	266,370	46,261,339	173.67	885,186	4.59	2.05
Wool	117,171	34,196,799	291.85	341,853	2.40	0.90
Live stock	900,933	221,217,452	245.54	1,295,472	1.41	6.92
Total ..	13,010,164	1,394,099,131	107.15	6,106,563	1.05	100.00

In the following tables will be found particulars of the ton-mileage and earnings per ton-mile in the case of Western Australia and Tasmania :—

WESTERN AUSTRALIA.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED 30th JUNE, 1920.

Particulars.	Total Tons Carried.	Total "Ton-miles."	Average Miles per Ton.	Earnings.	Earnings per "Ton-mile."	Per cent. on Total Tonnage.
		No.	No.	£	d.	%
Native coal, coke, shale and charcoal ..	188,164	22,138,557	117.65	63,527	0.69	7.20
Imported coal, coke, shale and charcoal ..	27,615	1,104,204	39.98	7,268	1.58	1.06
Wool	33,089	2,250,047	68.00	47,475	5.06	1.27
Hay, straw and chaff ..	114,677	13,306,347	116.03	68,773	1.24	4.39
Wheat	467,009	39,197,348	83.93	173,055	1.06	17.87
Firewood	429,011	6,814,630	15.88	40,924	1.44	16.41
Native timber ..	349,076	25,367,971	72.67	167,432	1.58	13.36
Imported timber ..	2,325	48,359	20.80	1,103	5.47	0.09
Fruit and garden produce	50,153	7,543,812	150.42	52,358	1.67	1.92
Fertilizers	79,457	11,178,336	140.68	19,709	0.42	3.04
Water	7,909	245,679	31.06	1,495	1.46	0.30
Miscellaneous (including ores and minerals) ..	281,367	11,674,379	41.49	58,699	1.21	10.76
Grain and special grain class (other than wheat, chaff, &c.)	228,995	18,953,671	82.77	99,481	1.26	8.76
A class	26,889	2,700,306	100.42	18,092	1.61	1.03
B class	32,420	9,927,140	306.20	64,222	1.55	1.24
C class	13,453	2,810,038	208.88	35,185	3.01	0.52
1st class	60,132	7,071,724	117.60	144,584	4.91	2.30
2nd class	24,155	2,889,190	119.61	77,989	6.48	0.92
3rd class	15,282	2,621,698	171.55	81,365	7.45	0.58
All other goods paying..	84,793	6,943,168	81.88	62,677	2.17	3.24
Live stock	97,635	12,597,497	129.03	109,495	2.09	3.74
Total	2,613,606	207,384,101	79.35	1,394,908	1.61	100.00

TASMANIA.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED 30th JUNE, 1920.

Particulars.	Total Tons Carried.	Total "Ton-miles."	Average Miles per Ton.	Earnings.	Earnings per "Ton-mile."	Per cent. on Total Tonnage.
	No.	No.	No.	£	d.	%
Agricultural produce ..	77,931	4,760,121	61.08	31,611	1.59	14.10
Hay, straw, chaff, and horse feed	50,218	2,582,752	51.43	18,367	1.70	9.08
Stable manure ..	2,696	89,991	33.38	422	1.12	0.49
Manures, other than stable	15,218	576,213	37.86	2,534	1.05	2.75
Fruit	10,513	581,549	55.31	6,405	2.64	1.90
Native coal	69,169	7,650,225	110.60	22,505	0.70	12.51
Minerals, other than native coal	76,046	1,784,522	23.46	13,827	1.85	13.76
Bark	1,022	35,747	34.88	434	2.91	0.19
Firewood	63,260	2,022,970	31.98	9,651	1.14	11.44
Timber	105,338	5,384,967	51.12	34,799	1.55	19.06
Wool	5,886	463,646	78.77	6,909	3.57	1.06
Miscellaneous goods ..	75,535	5,033,801	66.64	86,683	4.13	13.66
Total	552,832	30,966,504	56.01	234,147	1.81	100.00

16. Interest Returned on Capital Expenditure.—In the year 1901–2 the State Government railways made a profit of 2.94 per cent. on the capital expenditure at that time. In the subsequent years up to and including the year 1910–11, the percentages were 2.56, 3.11, 3.36, 3.98, 4.45, 4.32, 4.22, 4.26, and 4.63 respectively, rates which shew substantial increases with one exception on that for the first-named year. Since 1910-11, the rates have oscillated and have shewn a decreasing tendency, the rate for the year 1919–20 being 3.38, or 1.25 less than that for the year 1910–11. The reasons for this reduction are to be found in the increases of the charges in respect of working expenses, brought about by the opening of new lines, the higher cost of materials, and the raising of the rates of wages, while in recent years additional expenses have been incurred in consequence of the war. The return on the capital invested as at the 30th June, 1920, was not equal to the interest payable for that year, the rate of which was 4.33 per cent. This average, however, does not accurately express the position. At an early period the necessity for the construction of railways to open up undeveloped districts was recognised, and the money had to be raised at a very high rate of interest. It may be noted, however, that although the loans made for expenditure on railway construction and equipment very largely increase the amount of the public debt of the States, forming, in fact, nearly three-fifths of the total debt, the money borrowed has not been sunk in undertakings which give no return, but has been expended on works which are increasingly reproductive, yielding in most cases a direct return on the capital expended, and representing a greater value than their original cost. In Europe the national debts of various countries have been incurred principally through the expenses of prolonged wars, and the money has gone beyond recovery; but in Australia the expenditure by the States up to a recent period is represented to a large extent by public works which yield a direct return. In addition to the purely commercial aspect of the figures relating to the revenue and expenditure of the State railways, it is of great importance that the object with which many of the lines were constructed should be kept clearly in view; the anticipated advantage in building these lines has been the ultimate settlement of the country rather than the direct returns from the railways themselves, and the policy of the State Governments has been to use their railway systems for the development of the country's resources to the maximum extent consistent with the direct payment by the customers of the railways of the cost of working and interest charges.

(i) *Profit or Loss after Payment of Working Expenses and Interest.* The net revenue of the Government railways of each State after payment of working expenses is

shewn in sub-section 13 hereof. The following table shews the amount of interest payable on expenditure from loans on the construction and equipment of the railways of each State, the actual profit or loss after deducting working expenses and interest and all other charges from the gross revenue, and the percentage of such profit or loss on the total capital cost of construction and equipment.

The losses during the last four years for all the States are due to the causes to which allusion has already been made in the remarks as to increases in the working expenses of the railways (see pp. 591 and 592 *ante*). It will be observed in the following table that the interest charges in 1920 were £1,890,237 higher than they were in 1916.

STATE RAILWAYS.—INTEREST ON LOAN EXPENDITURE, PROFIT OR LOSS, AND PERCENTAGE OF PROFIT OR LOSS ON TOTAL COST, 1916 TO 1920.

Year ended 30th June.	N.S.W.	Victoria. (a)	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	AMOUNT OF INTEREST ON RAILWAY LOAN EXPENDITURE.						
	£	£	£	£	£	£	£
1916	2,568,659	1,922,410	1,418,280	663,588	625,250	180,772	7,378,959
1917	2,858,789	2,006,197	1,500,800	673,985	643,765	181,617	7,865,153
1918	3,043,349	2,120,547	1,559,136	716,234	654,059	183,977	8,277,302
1919	3,265,540	2,157,798	1,617,404	747,671	665,100	186,402	8,639,915
1920	3,641,988	2,225,881	1,722,760	780,362	690,618	197,587	9,269,196
	PROFIT OR LOSS AFTER PAYMENT OF WORKING EXPENSES, INTEREST, AND OTHER CHARGES.(b)						
	£	£	£	£	£	£	£
1916	−223,749	−214,650	−417,991	−243,667	−48,795	−81,395	−1,230,256
1917	−394,064	−207,518	−663,020	−125,796	−214,834	−130,298	−1,735,530
1918	−28,916	−9,380	−945,372	−131,740	−289,005	−106,194	−1,500,607
1919	−211,817	−5,184	−1,323,252	−185,898	−359,794	−109,633	−2,195,576
1920	−129,125	−59,821	−1,087,001	−70,182	−399,215	−81,601	−1,826,945
	PERCENTAGE OF PROFIT OR LOSS ON CAPITAL COST OF CONSTRUCTION AND EQUIPMENT.(b)						
	%	%	%	%	%	%	%
1916	−0.33	−0.39	−1.20	−1.41	−0.29	−1.70	−0.62
1917	−0.55	−0.37	−1.82	−0.71	−1.23	−2.65	−0.85
1918	−0.03	−0.02	−2.53	−0.73	−1.63	−2.11	−0.72
1919	−0.28	−0.01	−3.46	−1.00	−2.00	−2.16	−1.03
1920	−0.16	−0.10	−2.71	−0.36	−2.21	−1.55	−0.83

(a) Allowing for payment of special expenditure and charges (see sub-section 11 above).
(b) − indicates a loss.

17. Passenger Fares and Goods Rates.—Fares and rates are changed from time to time to suit the convenience and varying necessities of the railways, but, as traffic is developed and revenue increases, they are in many cases reduced to an extent consistent with the direct payment by the customers of the railways of the cost of working and interest charges.

(i) *Passenger Fares.* On the Australian Government railways two classes are provided for passenger traffic. The fares charged may be classified as follows:—(*a*) Fares between specified stations (including suburban fares). (*b*) Fares computed according to mileage rates. (*c*) Return, periodical, and excursion fares. (*d*) Special fares for workingmen, school pupils, and others. Fares in class (*a*) are issued at rates lower than the ordinary mileage rates. Fares in class (*b*) are charged between stations not included in class (*a*). On the average, mileage-rate fares run about 1.91 pence per mile for first-class and about 1.22 pence per mile for second-class single tickets. In New South Wales, Victoria, and Queensland the mileage rates are based upon a tapering

principle, *i.e.*, a lower charge per mile is made for a long journey than for a short journey. In Victoria return fares are generally about 1½ to 1¾ times the single fare, and the second-class are about 30 to 45 per cent. lower than the first-class fares, whilst in Western Australia the return fares are double the single rates. In all the States the issue of ordinary return tickets outside the suburban areas has now been discontinued. Special excursion return tickets are, however, issued at certain times of the year, subject to restrictions as to break of journey and trains available for such tickets.

The following table shews the passenger fares for different distances charged in each State between stations for which specific fares are not fixed :—

ORDINARY PASSENGER MILEAGE RATES ON STATE RAILWAYS, 1920.

State.	For a Journey of—											
	50 Miles.		100 Miles.		200 Miles.		300 Miles.		400 Miles.		500 Miles.	
	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales	9 5	6 2	18 10	12 6	37 8	23 4	56 0	34 1	74 5	43 6	87 0	49 7
Victoria ..	8 3	5 6	16 0	10 8	32 0	21 4	44 9	29 10	54 3	36 2	63 9	42 6
Queensland ..	9 4	6 3	17 0	11 0	32 0	20 6	46 0	28 9	59 0	36 0	71 0	43 0
South Australia	8 4	5 7	16 9	11 3	33 6	22 3	60 0	33 6	66 9	44 6	83 6	55 9
Western Australia ..	7 6	4 8	15 0	9 5	30 0	18 9	45 0	28 2	60 0	37 6	75 0	46 11
Tasmania ..	9 0	6 0	18 0	11 9	35 6	23 9	53 0	35 6	..	..	..	..
Average ..	8 8	5 8	16 11	11 1	33 5	21 8	49 2	31 8	62 5	39 6	76 1	47 7
Average per passenger mile..	d. 2.08	d. 1.36	d. 2.03	d. 1.33	d. 2.00	d. 1.30	d. 1.97	d. 1.27	d. 1.87	d. 1.18	d. 1.83	d. 1.14

The above rates were those in force in June, 1920. Since that time several changes have been made in the rates, of which full particulars are not yet available.

(ii) *Parcel Rates.* In all the States parcels may be transmitted by passenger train at prescribed rates, which are based upon weight and distance carried. The rates vary slightly in the different States. In New South Wales they range from threepence for a parcel not exceeding 3 lbs. for any distance up to 25 miles to thirteen shillings and fourpence for a parcel weighing from 85 lbs. to 112 lbs. for a distance of 500 miles. In Victoria the charge for a parcel weighing from 84 lbs. to 112 lbs. for a distance over 450 miles is fourteen shillings and fourpence. The rate in Queensland for a parcel weighing from 85 to 112 lbs. for 500 miles is sixteen shillings and threepence; in South Australia for 550 miles fourteen shillings and ten pence; in Western Australia for a parcel weighing from 99 lbs. to 112 lbs. for 500 miles fourteen shillings; and in Tasmania for a distance of 250 miles the rate is eight shillings.

(iii) *Goods Rates.* The rates charged for the conveyance of goods and merchandise may generally be divided into three classes, viz. :—(*a*) Mileage rates, (*b*) District or "development" rates, and (*c*) Commodity rates. In each of the States there is a number —ranging from eight in Victoria to fifteen in Tasmania—of different classes of freight. Most of the mileage rates are based upon a tapering principle, *i.e.*, a lower charge per ton-mile is made for a long haul than for a short haul; but for some classes of freight there is a fixed rate per mile irrespective of distance. District rates are charged between specified stations, and are somewhat lower than the mileage rates. In addition to the ordinary classification of freights under class (*a*), certain commodities, such as wool, grain, agricultural produce, and crude ores, are given under class (*c*) special rates, lower than the mileage rates.

Space will not permit of exhibiting a complete analysis of goods rates in the several States. As an indication of the range and amount of such rates the subjoined tables are given. The first table shews for each State the truck-load rates charged for hauls of different distances in respect of agricultural produce not otherwise specified; these special rates are here given for this class of produce, since it is generally forwarded in truck-loads.

RATES FOR AGRICULTURAL PRODUCE IN TRUCK-LOADS ON STATE RAILWAYS, 1920.

State.	Charge per Ton in Truck-loads for a Haul of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales	6 6	9 9	12 3	13 8	14 9	15 7
Victoria	5 10	9 2	12 2	14 0	15 10	17 6
Queensland	5 8	10 2	12 0	13 0	14 6	15 6
South Australia (a)	7 10	11 1	16 5	21 9	27 1	32 3
Western Australia	7 3	9 11	13 1	18 0	23 0	25 0
Tasmania	7 7	12 10	15 0	15 0	..	..
Average	6 9	10 6	13 6	15 11	19 0	21 2
	d.	d.	d.	d.	d.	d.
Average per ton-mile ..	1.62	1.26	0.81	0.63	0.57	0.51

(a) Wheat is carried at a lower rate than that specified above for agricultural produce.

The next table shews for each State the ordinary mileage rates charged per ton for hauls of different distances in respect of (a) the highest-class freight, and (b) the lowest-class freight :—

ORDINARY GOODS MILEAGE RATES ON STATE RAILWAYS, 1920.

State.	Charge per ton for a Haul of—											
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
	Highest Class Freight.						Lowest Class Freight.					
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales ..	32 11	64 3	111 11	141 10	153 9	105 8	4 4	5 7	6 5	8 4	10 7	12 10
Victoria ..	27 6	53 6	101 0	138 0	169 9	201 9	3 0	4 8	6 8	8 10	9 10	10 8
Queensland	51 10	89 4	159 8	a220 6	a254 1	a268 4	5 8	10 2	17 3	21 2	25 8	30 3
South Australia ..	34 5	66 2	124 5	171 0	211 9	246 8	4 3	8 0	12 1	14 3	16 2	18 1
Western Australia ..	44 1	74 1	128 10	174 9	212 4	243 8	2 3	3 1	5 2	7 3	9 4	11 5
Tasmania ..	37 2	59 5	110 0	..	..	..	3 1	6 2	9 4	..	..	..
Average ..	38 0	67 10	122 8	169 3	200 4	225 3	3 9	6 3	9 6	12 0	14 4	16 9
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Average per ton mile..	9.12	8.14	7.36	6.77	6.04	5.41	0.90	0.75	0.57	0.48	0.43	0.40

(a) Maximum freight for distances up to 500 miles on highest class goods to Western stations is 210 shillings per ton.

The classification of commodities varies in the several States. Generally, the highest-class freight includes expensive, bulky, or fragile articles, while the lowest-class comprises many ordinary articles of merchandise, such as are particularly identified or connected with the primary industries of each State.

In New South Wales, for example, the highest-class freight comprises such articles as boots, drapery, drugs, groceries, furniture, liquors, crockery and glassware, cutlery, ironmongery, confectionery, and carpets. In the same State the lowest-class freight includes agricultural produce, ores, manures, coal, coke, shale, firewood, limestone, stone, slates, bricks, screenings, rabbit-proof netting, timber, and posts and rails.

18. Numbers and Description of Rolling Stock, 1919–20.—The following table shows the rolling stock in use on the State Government railways in each State, classified *according to gauge* :—

ROLLING STOCK ON STATE GOVERNMENT RAILWAYS IN EACH STATE, CLASSIFIED ACCORDING TO GAUGE, 1919–20.

LOCOMOTIVES.

State.	Gauge. 5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.	Total.
New South Wales	..	1,279	..	..	..	1,279
Victoria ..	770	..	..	17	..	787
Queensland ..	..	..	661	..	5	666
South Australia ..	242	..	245	..	..	487
Western Australia	..	..	423	..	..	423
Tasmania ..	..	..	73	7	..	80
Total ..	1,012	1,279	1,402	24	5	3,722

PASSENGER VEHICLES.

State.	5 ft. 3 in. Ordinary.	5 ft. 3 in. With Motors.	4 ft. 8½ in. Ordinary.	4 ft. 8½ in. With Motor.	3 ft. 6 in. Ordinary.	3 ft. 6 in. With Motors.	2 ft. 6 in.	2 ft. 0 in.	Total. Ordinary.	Total. With Motors.
New South Wales	..	..	*1,664*	*1*	..	..	..	..	*1,664*	*1*
Victoria ..	1,485	151	..	..	..	..	49	..	1,534	151
Queensland ..	..	..	..	..	817	16	..	7	824	16
South Australia ..	448	1	..	..	175	2	..	..	623	3
Western Australia	..	..	..	..	396	..	..	..	396	..
Tasmania ..	..	..	..	..	170	2	..	6	176	2
Total ..	1,933	152	1,664	1	1,558	20	49	13	5,217	173

VEHICLES, OTHER THAN PASSENGER.

State.	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.	Total.
New South Wales	..	22,962	..	..	..	22,962
Victoria ..	20,190	..	..	249	..	20,439
Queensland ..	..	..	14,523	..	148	14,671
South Australia ..	4,042	..	5,419	..	..	9,461
Western Australia	..	..	10,127	..	..	10,127
Tasmania ..	..	..	1,780	..	77	1,857
Total ..	24,232	22,962	31,849	249	225	79,517

19. Number of Railway Employees.—The following table shows the number of employees in the Railway Department of each State in each year from 1916 to 1920 inclusive, classified according to (*a*) salaried staff, and (*b*) wages staff :—

In the period under review it will be seen that the totals of salaried and wages staffs have fallen from 93,576 in 1916 to 85,837 in 1918, but rose to 91,536 in 1920, the latter being a decrease of 2.17 per cent. of the number in 1916.

Separate returns for salaried and wages staff are not available for South Australia prior to 1916–17; the number of salaried staff is therefore included in the wages staff.

STATE RAILWAYS.—NUMBER OF EMPLOYEES IN RAILWAY DEPARTMENTS, 1916 TO 1920.

State.	At 30th June—									
	1916.		1917.		1918.		1919.		1920.	
	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.
New South Wales ..	b4,148	b34,634	b4,590	b30,726	b4,870	b29,370	b4,987	b29,776	4,913	b29,807
Victoria	2,428	20,500	b2,344	b17,126	c2,380	c16,859	c2,525	c17,285	2,727	21,824
Queensland ..	2,889	9,877	3,024	10,784	3,251	11,090	3,206	11,222	3,239	10,692
South Australia a ..	..	10,460	1,057	9,241	b1,099	b8,904	b1,075	b8,570	1,004	8,122
Western Australia ..	1,011	6,204	961	5,623	972	5,675	1,077	6,057	1,115	6,553
Tasmania	222	1,203	233	1,151	221	1,146	199	1,240	210	1,330
All States	10,698	82,878	12,209	74,651	12,793	73,044	13,069	74,150	13,208	78,328

(a) Prior to 1916–17, separate returns for salaried and wages staffs are not available; the number of salaried staff in the earlier years is included with the wages staff. (b) Including those absent on military or naval service. (c) Excluding those absent on active service.

20. **Accidents.—Number of Killed and Injured.**—The subjoined table gives particulars of the number of persons killed and injured through train accidents and the movement of rolling stock on the Government railways in each State for each of the years 1915–16 to 1919–20 inclusive:—

STATE RAILWAYS.—NUMBER OF PERSONS KILLED AND INJURED, 1916 TO 1920.

State.	In year ended 30th June—									
	1916.		1917.		1918.		1919.		1920.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New South Wales	87	710	63	572	59	496	44	690	70	751
Victoria	54	534	32	465	44	561	52	510	38	451
Queensland	26	181	30	280	21	205	28	162	20	694
South Australia	14	193	11	247	17	189	22	193	13	157
Western Australia	18	131	20	106	13	86	20	140	30	127
Tasmania	10	89	1	4	2	7	4	7	3	31
All States	209	1,838	157	1,674	156	1,544	170	1,702	174	2,211

(D) Graphical Representation of Government Railway Development.

1. **General.**—Railways are so important a factor in the development of Australia that it has been deemed desirable to represent graphically the main facts of their progress from 1860 onwards. To this end the graphs shewn on pages 572 to 574 have been prepared.

2. Capital Cost and Mileage Open (page 572).—The graph shews that the ratio between these elements was, naturally enough, very variable from 1860 to 1870, consequent upon progressive decrease in cost of construction. It then became subject to a more regular change, implying reduction of average cost, though in recent years a slight increase has been in evidence.

3. Cost per Mile Open.—The fluctuations in cost per mile open from 1860 are clearly indicated by the graph on page 572. In 1855 the cost per mile open was no less than £28,430; by 1858 it had fallen to £17,752, when it rose again to a maximum of £35,958 in 1862. It then diminished rapidly till 1885—when it reached £10,074 per mile—rose to £10,244 in 1886, then fell slowly till 1888, when it amounted to £10,092 per mile. Again rising, this rate attained to £10,481 in 1892, since when it has, on the whole, been declining, reaching its lowest value, £9,466, in 1911. In 1912, 1913, and 1914 it rose to £9,544, £9,665, and £9,820 respectively, but fell in 1915 to £9,632. In 1916 it rose to £9,895, in 1917 was £9,901, in 1918 £9,943, and fell slightly in 1919 to £9,942, and rose to £9,985 in 1920.

4. Gross Revenue.—This graph (page 572) exhibits considerable irregularities, the most striking of which are the maxima in 1892, 1902, 1914, and 1920. The fall commencing in 1892 was in consequence partly of the commercial crisis and partly of the then droughty conditions of several of the States, while that of 1902–3 was due to drought. In the latter case the recovery was very rapid, and there has been a continuous rise up to the year 1914. In 1915, there was a fall amounting to £1,016,421. Since 1915 each year has given an increase over the previous year's figures, the increases for 1916, 1917, 1918, 1919, and 1920 being £1,260,646, £813,479, £1,280,565, £983,563, and £6,802,538 respectively.

5. Working Expenses.—In this case the graph (page 572) has the same characteristics as those of gross revenue. It should be noted, however, that working expenses have been increasing during the last five years at a greater rate than gross revenue, owing to increases in wages and the higher cost of materials.

6. Net Revenue.—This graph (page 572) shews a fairly constant rate of increase up to 1900. Thence to 1903 there was a continuous fall, which was followed by a rapid rise to 1907. In 1911 and 1914 there were maxima, followed by a fall in 1915 and a rise in 1916. In 1917 there was a slight fall, and a substantial rise in 1918. In 1919 there was a fall, with a considerable rise in 1920.

7. Percentage of Working Expenses on Gross Revenue.—This is shewn for each State and for the Commonwealth, from the year 1855, on page 573. The curve for the Commonwealth shews considerable fluctuations, but points also to the fact that, although a slight rise occurred in 1908, there was from 1903 to 1907 a rapid decline in the percentage of working expenses to gross revenue; since 1907, however, there has been a steady increase up to 1915. In 1916 the percentage slightly declined, rose again in 1917, declined in 1918, but rose in 1919 and 1920. In the case of the individual States it will be seen that the curves shew considerable fluctuations, particularly in the early years of the period under review.

8. Percentage of Net Revenue on Capital Cost.—The fluctuations in this item from the year 1855 are shewn in the graph on page 574 After exhibiting somewhat remarkable oscillations in the earlier years, and less marked ones between 1885 and 1900, and also a rapid fall to 1903, the curve for the Commonwealth from that year shews a well-marked increase until the year 1908, a slight fall occurring in that year and in 1909. Maxima were reached in 1865, 1877, 1881, 1907, and 1911—viz., 3.44, 3.71, 4.12, 4.45, and 4.54 per cent. Since 1911 the rate has varied considerably, that for 1920 being 1.36 lower than that for 1911.

For the individual States the results are in general very satisfactory up to 1911. The greatest maximum percentage attained by each of the States in any year during the period under review is as follows:—New South Wales 5.31 in 1881, Victoria 4.51, Queensland 4.51, and South Australia 6.47 in 1911, Western Australia 11.48 in 1896, and Tasmania 2.49 in 1913. Since 1911 (1913 in the case of Tasmania) the States have shewn varying and declining rates. The effect of the drought of 1915 is discernible, also the rise of wages and higher cost of materials, to which allusion has already been made.

The remarkable maximum for Western Australia in 1896 is consequent upon the large use made of the railways at the time of the development of the Western Australian goldfields.

9. ***General Indications of Graphs.***—Reviewing the cost of railways, as a whole, it may be noted that at the undermentioned dates the average cost per mile open was as follows :—

GOVERNMENT RAILWAYS.—AVERAGE COST PER MILE OF LINE OPEN, 1859 TO 1920.

STATE AND FEDERAL.

Date ..	1859.	1860.	1879.	1889.	1899.	1909.	1919.	1920.
	£	£	£	£	£	£	£	£
Cost per mile	27,857	19,857	11,891	10,367	9,722	9,489	9,942	9,985

While the sinister influence of the drought of 1902 is strikingly shewn in the curves (*a*) by the fall in the gross and net revenue in 1902–3, (*b*) by the fall in the percentage of net revenue on capital cost, and (*c*) by the increase of working expenses on gross revenue, the rapidity of recovery is even more striking, and serves to indicate the great elasticity of the economic condition of the Commonwealth. Although the percentage of net revenue on capital cost during the year 1919–20 has been exceeded in previous years, nevertheless it is satisfactory that the Government railways, necessarily constructed largely in accordance with a policy of widespread development of Australia's resources rather than as mere commercial enterprises, and costing so large a sum as £231,115,732 for construction and equipment up to the 30th June, 1920, should yield a return of no less than 3.18 per cent.

It should be mentioned that the graphs for the Commonwealth include the Federal railways.

(E) Government Railways Generally.

1. ***Rolling Stock.***—*In the following table particulars of the numbers of the rolling* stock employed on both the Federal and State Government railways are set out, classified according to gauge, as at the 30th June in the years 1901, 1911, 1916, and 1920 respectively, together with the percentage of the numbers for each gauge on the total for the mainland. For geographical reasons the figures for Tasmania are shewn separately from those for the mainland.

ROLLING STOCK EMPLOYED ON THE FEDERAL AND STATE GOVERNMENT RAILWAYS AS AT 30th JUNE, 1901, 1911, 1916, AND 1920.

LOCOMOTIVES.

Gauge.	At 30th June—							
	1901.		1911.		1916.		1920.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in. ..	688	35.23	705	26.84	1,031	28.66	1,012	27.16
4 ft. 8½ in. ..	495	25.34	903	34.37	1,247	34.67	1,349	36.20
3 ft. 6 in. ..	765	39.17	1,009	38.41	1,298	36.09	1,343	36.07
2 ft. 6 in. ..	5	0.26	10	0.38	17	0.47	17	0.46
2 ft. 0 in. ..	..	..	..	..	4	0.11	5	0.11
Total ..	1,953	100.00	2,627	100.00	3,597	100.00	3,726	100.00
Tasmania—								
3 ft. 6 in. ..	64	..	72	..	73	..	73	..
2 ft. 0 in. ..	7	..	7	..	7	..	7	..
Grand Total	2,024	..	2,706	..	3,677	..	3,806	..

ROLLING STOCK EMPLOYED ON THE FEDERAL AND STATE GOVERNMENT RAILWAYS—*continued.*

PASSENGER VEHICLES, INCLUDING THOSE FITTED WITH MOTORS.

(See below.)

Gauge.	At 30th June— 1901.		1911.		1916.		1920.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in. ..	1,365	49.71	1,618	42.50	1,958	39.68	2,085	39.72
4 ft. 8½ in. ..	610	22.21	1,136	29.84	1,636	33.15	1,698	32.35
3 ft. 6 in. ..	761	27.71	1,032	27.11	1,300	26.34	1,410	26.87
2 ft. 6 in. ..	10	0.37	21	0.55	34	0.69	49	0.93
2 ft. 0 in. ..	..	..	..	..	7	0.14	7	0.13
Total ..	2,746	100.00	3,807	100.00	4,935	100.00	5,249	100.00
Tasmania—								
3 ft. 6 in. ..	163	..	170	..	167	..	172	..
2 ft. 0 in. ..	8	..	6	..	6	..	6	..
Grand Total	2,917	..	3,983	..	5,108	..	5,427	..

PASSENGER VEHICLES FITTED WITH MOTORS, INCLUDED IN TABLE OF PASSENGER VEHICLES ABOVE.

Gauge.	At 30th June— 1901.	1911.	1916.	1920.
Mainland—				
5 ft. 3 in. ..	2	..	4	152
4 ft. 8½ in. ..	..	..	..	1
3 ft. 6 in. ..	..	2	7	18
Total ..	2	2	11	171
Tasmania—				
3 ft. 6 in. ..	..	..	..	2
Grand Total	2	2	11	173

VEHICLES, OTHER THAN PASSENGER.

Gauge.	At 30th June— 1901.		1911.		1916.		1920.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in. ..	12,204	31.05	15,430	27.80	23,531	30.93	24,232	30.77
4 ft. 8½ in. ..	11,540	29.36	17,112	30.83	22,865	30.06	23,708	30.11
3 ft. 6 in. ..	15,481	39.38	22,775	41.03	29,343	38.57	30,411	38.62
2 ft. 6 in. ..	82	0.21	190	0.34	248	0.33	249	0.32
2 ft. 0 in. ..	..	..	..	..	83	0.11	148	0.18
Total ..	39,307	100.00	55,507	100.00	76,070	100.00	78,748	100.00
Tasmania—								
3 ft. 6 in. ..	1,389	..	1,618	..	1,710	..	1,780	..
2 ft. 0 in. ..	50	..	71	..	77	..	77	..
Grand Total	40,746	..	57,196	..	77,857	..	80,605	..

In the nineteen years under review the percentages of the numbers of locomotives for each gauge on the total number of locomotives on all Government railways on the mainland have undergone the following changes: on the 5-ft. 3-in. gauge the percentage has fallen by 8.07 per cent., the 4-ft. 8½-in. gauge increased by 10.86, and the 3-ft. 6-in. gauge fallen by 3.10 per cent.

As regards passenger vehicles the alterations are as follow: on the 5-ft. 3-in. gauge the percentage has fallen by 10.00 per cent., the 4-ft. 8½-in. gauge increased by 10.15, and the 3-ft. 6-in. gauge fallen by 0.84 per cent.

In the case of vehicles other than passenger the changes have been small, the 5-ft. 3-in. gauge percentage having fallen 0.28, the 4-ft. 8½-in. gauge risen by 0.75, and the 3-ft. 6-in. gauge fallen by 0.76 per cent.

2. Railway Mileage (Route) Open for Traffic.—The Government railway route mileages open for traffic, classified according to gauge, as at the 30th June in each of the years 1901, 1911, 1916, and 1920, are set out in the following table, which gives as well the percentages of each mileage on the total on the mainland, the figures for Tasmania being shewn separately, as in the case of the preceding table relating to rolling stock:—

RAILWAY (ROUTE) MILEAGE OF THE FEDERAL AND STATE GOVERNMENT RAILWAYS, CLASSIFIED ACCORDING TO GAUGE AS AT 30th JUNE IN EACH OF THE YEARS 1901, 1911, 1916, AND 1920, WITH PERCENTAGES ON TOTAL FOR MAINLAND.

Gauge.	At 30th June—							
	1901.		1911.		1916.		1920.	
	Miles.	%	Miles.	%	Miles.	%	Miles.	%
Mainland—								
5 ft. 3 in. ..	3,696.77	30.50	4,023.61	25.78	4,955.44	24.56	5,215.70	23.16
4 ft. 8½ in. ..	2,805.34	23.14	3,717.17	23.82	4,925.86	24.41	6,032.05	26.79
3 ft. 6 in. ..	5,571.02	45.96	7,742.96	49.62	10,143.38	50.28	11,118.81	49.38
2 ft. 6 in. ..	48.25	0.40	121.90	0.78	121.90	0.60	121.90	0.54
2 ft. 0 in. ..	..	..	..	..	29.35	0.15	30.26	0.13
Total ..	12,121.38	100.00	15,605.64	100.00	20,175.93	100.00	22,518.72	100.00
Tasmania—								
3 ft. 6 in. ..	439.33	..	448.93	..	538.73	..	605.12	..
2 ft. 0 in. ..	18.72	..	23.57	..	23.58	..	23.58	..
Grand Total	12,579.43	..	16,078.14	..	20,738.24	..	23,147.42	..

From the above table it will be seen that in the nineteen years from 1901 to 1920 the 5-ft. 3-in. gauge percentage has fallen by 7.34 per cent., and the 4-ft. 8½-in. and 3-ft. 6-in. gauges risen by 3.65 and 3.42 per cent. respectively.

3. Railway Mileage (Track) Open for Traffic. In the following table, the track mileages of all Government railways and sidings, exclusive of Tasmania, are shewn for the years ended 30th June, 1901, 1911, 1916 and 1919, classified according to gauge, together with the percentages of each mileage on the total.

RAILWAY (TRACK) MILEAGE, FEDERAL AND STATE GOVERNMENT RAILWAYS, EXCLUSIVE OF TASMANIA, ACCORDING TO GAUGE AS AT 30th JUNE, 1901–1919.

Gauge.	At 30th June— 1901.		1911.		1916.		1919.	
	Miles.	%	Miles.	%	Miles.	%	Miles.	%
5 ft. 3 in. ..	4,531.09	32.13	5,102.77	27.64	6,309.82	26.13	6,586.49	24.95
4 ft. 8½ in. ..	3,387.08	24.01	4,666.34	25.29	6,442.87	26.68	7,549.03	28.60
3 ft. 6 in. ..	6,134.78	43.50	8,562.97	46.38	11,236.96	46.53	12,101.70	45.84
2 ft. 6 in. ..	51.00	0.36	128.65	0.70	130.90	0.54	130.97	0.50
2 ft. 0 in. ..	..	..	..	..	29.35	0.12	29.35	0.11
Total ..	14,103.95	100.00	18,460.73	100.00	24,149.90	100.00	26,397.54	100.00

In the eighteen years under review, the 5 ft. 3 in. gauge percentage has fallen by 7.18 per cent., and the 4 ft. 8½ in. and 3 ft. 6 in. gauges have risen by 4.59 and 2.34 per cent. respectively.

4. Summary of Working of Federal and State Government Railways.—In the following table a summary is given of the working of all Government railways, both Federal and State, for the year ended 30th June, 1920, fuller particulars of which have been given in the sections B and C of this chapter :—

SUMMARY OF THE WORKING OF THE FEDERAL AND STATE GOVERNMENT RAILWAYS FOR THE YEAR ENDED 30th JUNE, 1920.

Particulars.		Federal Railways.	State Railways.	Total for Commonwealth.
Total mileage open	Miles	1,732.88	21,414.54	23,147.42
Average miles open during the year ..	„	1,732.88	21,284.00	23,016.88
Total train mileage	„	725,974	59,611,082	60,337,056
Total cost of construction of lines open	£	11,094,910	a220,020,822	a231,115,732
Cost per mile	£	6,402	a10,275	a9,985
Gross revenue	£	315,757	31,793,562	32,109,319
Working expenses	£	417,637	24,351,312	24,768,949
Percentage of working expenses on gross revenue	%	132.26	76.59	77.14
Net revenue	£	—101,880	7,442,250	7,340,370
Interest payable	£	363,646	9,269,196	9,632,842
Number of passenger journeys ..	No.	82,528	320,375,842	320,459,370
Tonnage of goods and live stock carried	Tons	176,427	30,622,786	30,799,213
Number of employees at 30th June, 1920—				
Salaried	No.	196	13,208	13,404
Wages	„	877	78,328	79,205
Number of persons killed and injured *during the year through train accidents and movement of rolling stock*—				
Killed	„	2	174	176
Injured	„	62	2,211	2,273

(a) Exclusive of lines from Mount Gambier to Victorian border, and from Murrayville to Victorian border.

NOTE.—The sign — denotes a loss on working.

5. **Government Railway Facilities.**—On page 566 *ante* the population per mile of line open for general traffic is given in respect of the States' railways for each State. In the following table is given the mileage of all Government railways, State and Federal, in each State and Territory, per 1,000 of population :—

MILEAGE OF ALL GOVERNMENT RAILWAYS, FEDERAL AND STATE, PER 1,000 OF POPULATION IN EACH STATE AND TERRITORY AS AT 30th JUNE, 1920.

State or Territory.	Population 30th June, 1920.	Length of Line Open (Route). State.	Federal.	Total.	Mileage per 1,000 of Population.
	No.	Miles.	Miles.	Miles.	Miles.
New South Wales	2,028,673	5,015.32	..	5,015.32	2.47
Victoria	1,504,260	4,214.00	..	4,214.00	2.80
Queensland	737,085	5,685.10	..	5,685.70	7.71
South Australia	472,432	2,333.19	1,075.32	3,408.51	7.22
Western Australia ..	334,176	3,538.23	453.94	3,992.17	11.95
Tasmania	216,643	628.70	..	628.70	2.90
Northern Territory ..	4,243	..	198.68	198.68	46.82
Federal Territory ..	2,222	..	4.94	4.94	2.22
Commonwealth	5,299,734	21,414.54	1,732.88	23,147.42	4.37

(F) Private Railways.

1. **Total Mileage Open, 1919-20.**—As has been stated in a previous part of this section (see A. 8) a number of private railway lines have from time to time been constructed in the Commonwealth. By far the greater proportion of such lines, however, has been laid down for the purpose of hauling timber, sugar-cane, coal, or other minerals, and is not generally used for the conveyance of passengers or for public traffic ; in many cases the lines are often practically unballasted and are easily removable, running through bush and forest country in connexion with the timber and sugar-milling industries, and for conveying firewood for mining purposes. Private railways referred to herein include (*a*) lines open to the public for general passenger and goods traffic ; and (*b*) branch lines from Government railways and other lines which are used for special purposes and which are of a permanent description. Other lines are referred to in the part of this section dealing with Tramways (see § 3, *Tramways*).

The following table gives particulars of private railways in the Commonwealth open for traffic for general and special purposes during 1919-20. A classification of these lines according to their gauge has already been given (see page 567).

MILEAGE OF PRIVATE RAILWAYS OPEN, 1919-20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
For general traffic ..	189.32	24.94	278.68	33.80	278.35	162.86	967.95
For special purposes	172.35	45.71	982.91	15.95	575.50	48.69	1,841.11
Total ..	361.67	70.65	1,261.59	49.75	853.85	211.55	2,809.06

2. **Classification of Private Railways.**—In previous issues of the Year Book, a classification has been given shewing particulars of the private railways open for general traffic and for special purposes. On account of the necessity for economy of space, this classification has been omitted from this issue and has been transferred to the "Transportation Bulletin No. 12."

3. **New South Wales.**—In this State the mileage of private railways open to the public for general traffic at the end of 1919 was 184.32, and of lines used for special purposes, 160.83 miles. Most of these lines were constructed primarily for the purpose of conveying

coal from the mines to the Government railway systems. Particulars for the year 1919-20 of the operations of lines open for general traffic are given, so far as available, in the table on page 614.

(i) *Private Railways Open for General Traffic.* The most important of the lines open for general traffic are as follows:—(a) *The Deniliquin-Moama Line.* In 1874 permission was granted by the New South Wales Government to the Deniliquin and Moama Railway Company to construct a line forty-five miles long from Deniliquin in the Riverina district, to Moama, connecting with the Victorian Railway system at the Murray Bridge, near Echuca. The line was opened in 1876, the land required being granted by the Government. (b) *The Cockburn-Broken Hill Line.* This line is owned by the Silverton Tramway Company. It was opened in 1888, and connects Broken Hill with the South Australian railway system, having a total length of 30.67 miles. (c) *South Maitland Railways.* These lines, belonging to the South Maitland Railways, Limited, run from East Greta Junction, on the Northern line of the Government railways, to Stanford Merthyr, a distance of 7.36 miles, and from Aberdare Junction to Cessnock, 12.08 miles—a total of 19.44 miles. (d) *The New Redhead Coal Company's Railway.* The lines owned by this company branch from the Northern line of the Government railways, and run from Adamstown to Burwood Extended Colliery, thence to Belmont, and from Burwood Junction to Dudley Boundary and branches, a total distance of 12.00 miles. The lines are worked by the Railway Department, coal wagons being supplied in part by the coal companies using the line. The colliery companies using the line pay a way-leave for right to run their coal over the line, and the Railway Commissioners allow the New Redhead Company a proportion of the revenue from the passenger and goods traffic. (e) *The Seaham Coal Company's Railway.* This line runs from Cockle Creek to West Wallsend and Seaham Collieries, and has a total length of 5.13 miles. (f) *Hexham-Minmi Railway.* This line branches from the Northern line of the Government railways at Hexham, and has a length of 6.00 miles. (g) *The Commonwealth Oil Corporation's Railway.* This line runs from Newnes Junction on the Great Western line of the Government railways to the company's refinery, a distance of 33 miles. The Shay geared type of locomotive is in use on this line. (h) *The Warwick Farm Line* is a short line, 0.83 of a mile in length, connecting the Government line near Liverpool with the Warwick Farm Racecourse. Government rolling stock is used. (i) *The Goondah-Burrinjuck Line* is a line 26.25 miles in length built and worked by the Public Works Department in connexion with the reservoir at Burrinjuck. (j) *Liverpool–Holdsworthy Line* is a line 5 miles in length, worked by the Railway Department, for which service a sum of £300 per annum is paid by the Defence Department.

In addition to the lines referred to above, legislative sanction was obtained in 1890 for the construction of a private line from the flux quarries at Tarrawingee to the Broken Hill line, a distance of 39.51 miles. The line was purchased by the Government in 1901, and is operated by the Silverton Tramway Company under lease from the Chief Commissioner, who pays the working expenses and receives the ordinary earnings and one-half the net receipts on special and holiday traffic. The mileage of this line is included in that of the Government railways, and it has a gauge of 3 feet 6 inches.

4. Victoria.—In Victoria there are two private railways open for general traffic. (a) *Kerang-Koondrook tramway*, opened in 1889. The cost of construction of this line to the end of September, 1920, was £39,229, paid out of a loan advanced by the Victorian Government. The total length is 13.94 miles. The line is at present controlled by the Kerang Shire Council, but proposals have been made for its transfer to the Railway Department. (b) *Yarra Junction to Powelltown.* This line has a length of 11 miles, and is worked mainly for timber purposes.

A line running from Elsternwick to Oakleigh, a distance of about 5 miles, was constructed by a private company many years ago. It was never in general use, and has for some time been dismantled.

5. Queensland.—In this State private railways open for general traffic may be grouped under two heads:—(i) Lines constructed primarily for mining purposes or for the transport of sugar-cane, and (ii) Shire tramways.

(i) *Mining Railways.* (a) *The Chillagoe Railway.* The most important of these is the Chillagoe railway, constructed under the Mareeba to Chillagoe Railway Act 1897,

and opened in 1901. This line runs from Mareeba, on the Cairns railway, to Mungana, a distance of 102.73 miles. On 20th June, 1919, it was vested in the Queensland Railways Commissioner. (b) *The Stannary Hills Line.* This line branches from the Chillagoe railway at Boonmoo and runs to Rocky Bluff, via Stannary Hills, a total distance of 21 miles. The gradients on this line, which has a gauge of 2 feet, range as high as 1 in 27, while the radius of some of the curves is as low as 1½ chains. An additional length of 8 miles has been surveyed with a view to extending the line.

(ii) *Shire Tramways.* Under Part XV. of the Local Authorities Act of 1902 provision is made whereby not less than one-third of the ratepayers in any district may petition the local authority to apply to the Governor for the constitution of a tramway area. The Governor may define the area and may also approve of the plans and specifications of the proposed tramway. The amount which may be advanced by the Government for the construction or purchase of a tramway may not exceed a sum equal to £5,000 for every mile of its length. As regards repayment of loans, no sum need be paid during the first three years, but after the expiration of that period the principal and interest must be repaid by half-yearly instalments on the basis provided for by the "Local Works Loans Act 1880 to 1899." For the purpose of raising the money to pay these instalments the local authority may levy a rate upon all ratable property within the tramway area. The money required for the tramway may be raised by the local authorities by the issue of debentures.

6. **South Australia.**—In this State a private railway open for general traffic is owned by the Broken Hill Proprietary Company, and runs from Iron Knob to the seaboard near the head of Spencer's Gulf, a distance of 33.80 miles. The line is utilized for the carriage of ore for use in connexion with the smelting works at Port Pirie and the steel works at Newcastle. There is also a line from Marion Bay, having a length of 5 miles, used for mining purposes.

7. **Western Australia.**—Owing to the difficulty experienced at one time by the Government in constructing lines urgently required for the development of the country, private enterprise was encouraged to undertake the work of construction on the land-grant principle, and two trunk lines were thus constructed. The greater part of the private lines now open, however, have been constructed in connexion with the timber industry. (i) *The Midland Railway.* This line is 278.35 miles in length, and runs from Midland Junction, ten miles from Perth, to Walkaway, where it joins the Government line running to Geraldton. It was constructed under a concession of 12,000 acres of land per mile of line constructed, to be selected along the entire route of the railway. (ii) *The Great Southern Railway.* This line, which was built by private enterprise under the land-grant system, is 242 miles in length, and was acquired by the Government by purchase on the 1st January, 1897. The total price paid for all the interests of the private company and of the original concessionaire, was £1,100,000, which was divided by the Government for book-keeping purposes into £300,000 for the land and £800,000 for the railway. (iii) *Millar's Timber Trading Company's Lines.* These lines have been built chiefly under special timber concessions and leases. There were, at latest date available, in all eight lines situate in various parts of the State extending into the bush, whence logs are brought to the mills. The total length of these lines was approximately 239.69 miles. (iv) *Other Lines.* There are also several other lines in various parts of the State used chiefly in connexion with the timber industry.

8. **Tasmania.**—In this State the three private lines open for general traffic are situated in the western part of the island.

(i) *The Emu Bay Railway Company.* The lines owned by this company run from Burnie to Waratah, from Guildford to Zeehan, and from Rayna to Dundas, and have a total length of 102.94 miles.

(ii) *The Mount Lyell Mining and Railway Company.* The Mount Lyell railway runs from Regatta Point, Strahan, to Queenstown, and the North Mount Lyell line from Kelly Basin to Linda. The former line, 22.13 miles in length, was constructed in 1895–6, while the latter line, 27.80 miles long, was taken over from the North Mount Lyell Copper Company on the amalgamation of the two companies in 1903. The line from Kelly Basin to Linda is now worked only intermittently.

(iii) *The Magnet Silver Mining Company's Railway.* This line runs from Magnet Junction, near Waratah, on the Emu Bay Company's line, to Magnet, a distance of 9.99 miles.

9. *Operations of Private Railways, 1919–20.*—The tabular statement given below shews particulars, so far as returns are available, for the year 1919–20, of all private railways open to the public for general traffic in the Commonwealth :—

PARTICULARS OF PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC, 1919–20.

Line.	Miles Open (Route).	Train Miles.	Capital Cost.	Gross Revenue.	Expenses. Working.	Expenses. Interest, etc.	Rolling Stock. Locos.	Rolling Stock. Coaches.	Rolling Stock. Other Vehicles.	Passenger Journeys.	Tons of Goods, etc.	No. of Employees.
	No.	No.	£	£	£	£	No.	No.	No.	No.	Tons.	No.
						NEW SOUTH WALES.						
C'wealth Oil Corp'r'n	33.00	17,013	194,500	6,115	8,615	(h)	4	(d)3	69	1,512	15,988	17
Deniliquin-Moama..	45.00	46,375	162,671	30,358	20,276	(h)	4	6	62	22,668	45,501	43
South Maitland ..	19.44	430,241	546,086	142,201	114,238	27,291	23	27	45	789,664	m202,100	296
Goon'h-Burrinj'k(a)	26.25	27,950	80,756	1,010	(i)9,420	(j)	4	3	28	2,896	3,461	29
Hexham-Minmi ..	6.00	1,968	1,000,000	200	352	(h)	1	1	..	245	600	4
New Redhead Co...	12.00	(h)	102,000	(h)	(h)	(h)	(c)	(c)	(c)	(h)	(h)	(c)
Seaham Colliery Co.	5.13	7,852	25,000	1,223	2,898	(h)	2	2	2	18,382	9,179	18
Silverton Tramway(l)	36.67	45,360	482,724	48,824	47,557	(h)	20	1	676	35,826	122,218	135
Liverp'l-H'dsw'thy(l)	5.00	1,688	35,354	(h)	(h)	(h)	(c)	(c)	(c)	(h)	(h)	(c)
Warwick Farm(l) ..	0.83	(h)	(h)	(h)	(h)	(h)	(c)	(c)	(c)	(h)	(h)	(c)
Total(b) ..	189.82	577,447	2,629,091	229,931	203,356	27,291	58	43	882	871,193	398,997	537
						VICTORIA.						
Kerang-K'ndrook (n)	13.94	17,798	39,229	6,001	4,194	1,426	3	2	9	18,350	25,680	17
Yarra J.-Powellt'n(n)	11.00	29,000	47,400	5,800	4,186	465	2	2	33	12,500	59,000	13
Total ..	24.94	46,798	86,629	11,801	8,380	1,891	5	4	42	30,850	84,680	30
						QUEENSLAND.						
Aramac-Barcaldine	41.50	15,212	86,739	13,911	7,386	4,256	2	2	2	5,719	11,877	16
Beaudesert(e) ..	33.00	(h)	93,559	12,337	10,651	..	1	3	1	14,090	11,585	27
Belmont Tramway	4.31	9,995	19,903	2,493	3,006	898	(c)	(c)	(c)	56,738	16,835	(c)
Buderim	7.00	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)
Irvinebank ..	14.00	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)
Douglas-Mossman	17.71	8,450	43,238	8,589	5,184	3,369	2	3	22	7,500	6,600	11
Invicta Mill ..	8.70	635	20,067	530	(h)	1,016	(c)	(c)	(c)	(h)	(h)	(c)
Lucinda Pt. to Stone R. and Lg. Pocket	50.75	} (h)	(h)	(h)	(h)	(h)	2	3	82	(h)	42,517	(h)
Green Hills to Hambledon Junc. ..	4.13											
Macgregor(l) ..	22.13	3,283	66,328	1,610	2,057	{ (k) 1,213 }	(c)	(c)	(c)	767	6,223	5
Mapleton ..	15.00	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)
Moreton Central S.M.	8.50	1,725	17,865	1,208	541	269	2	3	2	12,580	1,158	2
South Johnstone Central S.M. (l) ..	27.50	5,591	115,000	4,864	3,025	(h)	2	4	23	13,116	5,724	7
Stannary Hills ..	21.00	16,159	(f)64,320	4,031	5,675	(h)	2	2	76	1,916	12,489	8
Tannymorell Tram	3.45	2,237	(h)	296	148	(c)	(c)	(c)	(c)	1,022	3,668	(c)
Total(b) ..	278.68	63,287	527,019	49,869	37,873	10,516	13	20	208	113,446	118,626	75
						SOUTH AUSTRALIA.						
Iron Knob(b) ..	33.80	70,350	(h)	(h)	(h)	(h)	5	3	155	839	309,800	42
						WESTERN AUSTRALIA.						
Midland Railway(l)	278.35	296,611	(f) 2,036,655	129,057	80,483	(h)	17	18	402	62,972	99,399	247
						TASMANIA.						
Emu Bay Railway(g)	102.94	105,801	613,137	67,845	40,701	21,656	9	6	155	30,348	51,662	169
Magnet Railway(l)..	9.99	3,640	18,750	331	1,675	(h)	2	1	6	886	425	8
Mt. Lyell Railway(n)	22.13	44,249	216,086	26,883	23,955	(h)	7	7	117	22,921	40,776	104
Nth. Mt. Lyell Rly(n)	27.80	8,470	316,638	4,394	8,086	(h)	4	4	56	3,620	13,034	20
Total (b)	162.86	162,160	1,164,611	99,453	74,417	21,656	22	18	334	57,775	105,897	301
Total for C'wealth(b)	967.95	1,216,653	6,444,205	520,111	404,309	61,354	120	106	2023	1,137,075	1,117,399	1232

(a) The property of Commissioner of Water Conservation and Irrigation; for year ended 30th June, 1920. (b) Incomplete. (c) Worked by Government Railways. (d) Including one motor car. (e) For year ended 31st December, 1916. (f) For year ended 30th June, 1917. (g) Including 47.66 miles owned by the Emu Bay and Mount Bischoff Railway Company. (h) Not available. (i) Including interest. (j) Included in working expenses. (k) Rental of Permanent Way Material. (l) For year ended 30th June, 1920. (m) Exclusive of shipment coal. (n) For year ended 30th September, 1920.

10. **Comparative Railway Statistics.**—On page 566 *ante* a table is given shewing the railway facilities in 1919-20 in the States, in the Northern Territory, and in the Commonwealth, the railway mileage open for traffic being compared both with the area and population.

In the table below, comparative railway statistics of a like character are given in respect of the principal countries of the world at certain dates. The dates have been so chosen as to bring into relation the latest accurate figures for both population and railway mileage.

COMPARATIVE RAILWAY STATISTICS, VARIOUS COUNTRIES.

Country.	Year.	Miles of Railway.	Population.	Area in Square Miles.	Miles of Railway. Per 1,000 of Population.	Miles of Railway. Per 1,000 Sq. Miles of Territory.
Europe—						
United Kingdom ..	1919	23,725	47,000,700	121,633	0.50	195.05
Austria	1914	15,739	29,193,293	115,882	0.54	135.82
Belgium	1914	5,451	7,642,054	11,373	0.71	479.29
Denmark	1918	2,645	3,032,891	(*c*) 15,042	0.87	175.84
France	1914	*a*31,958	39,601,509	207,054	0.81	154.35
Germany	1914	39,600	64,114,100	208,780	0.62	189.67
Greece	1914	1,365	4,821,300	41,933	0.28	32.55
Hungary	1914	13,589	21,134,862	125,609	0.64	108.18
Italy	1917	11,891	36,740,000	110,632	0.32	107.48
Netherlands ..	1918	2,113	6,778,699	12,582	0.31	167.94
Norway	1918	2,010	2,632,010	125,001	0.76	16.08
Portugal	1913	1,854	5,957,985	35,490	0.31	52.24
Russia	1916	48,955	149,884,230	1,997,309	0.33	24.51
Spain	1917	9,306	20,695,691	(*b*) 190,050	0.45	48.99
Sweden	1917	9,303	5,813,850	173,035	1.60	53.76
Switzerland	1917	3,660	3,937,000	15,976	0.93	229.09
Asia—						
India	1918	36,333	315,156,396	1,802,629	0.12	20.16
Russia	*1913*	*10,586*	*29,141,320*	*6,641,587*	*0.36*	*1.59*
Africa—						
Egypt	1917	(*d*)2,874	12,710,120	350,000	0.23	8.21
Union of South Africa	1918	10,021	6,986,687	473,096	1.43	21.18
America, North—						
Canada	1917	38,604	8,835,000	3,729,665	4.37	10.35
Mexico	1914	15,840	15,501,684	767,198	1.02	20.65
United States ..	1916	266,381	105,253,300	2,973,890	2.53	89.57
America, South—						
Argentina	1918	21,880	8,284,266	1,153,119	2.64	18.97
Brazil	*1917*	*17,477*	*30,492,275*	*3,275,510*	*0.57*	*5.34*
Chile	1918	5,611	3,945,538	289,829	1.42	19.36
Australasia—						
Australia	**1920**	**25,956**	**5,298,734**	**2,974,581**	**4.90**	**8.73**
New Zealand ..	1920	3,134	1,257,405	104,751	2.49	29.92

(*a*) Including lines of "local" interest. (*b*) Exclusive of Balearic and Canary Islands. (*c*) Exclusive of Faroe Islands. (*d*) Exclusive of 1,500 miles in the Sudan.

It will be seen from the above table that per 1,000 of population the Commonwealth of Australia had the greatest mileage (in 1920), 4.90 miles; the next in magnitude being Canada (1917) with 4.37 miles, Argentina (1918) with 2.64 miles, the United States (1916) with 2.53 miles, and New Zealand (1920) with 2.49 miles.

The least mileage per 1,000 of population is shown in the case of India (1918) with 0.12 mile, followed by Egypt (1917) with 0.23 mile.

With regard to the mileage per 1,000 square miles of territory, Belgium (1914) with 479.29 miles was easily first, followed by Switzerland (in 1917) with 229.09 miles, the United Kingdom (in 1919) with 195.05 miles, Germany (in 1914) with 189.67 miles, and Denmark (in 1918) with 175.84 miles.

The least mileage open per 1,000 square miles is that of Asiatic Russia (in 1913) with 1.59 miles, the next being 5.34 miles in the case of Brazil (1917).

§ 3. Tramways.

1. **General.**—Tramway systems are in operation in all the States of the Commonwealth, and in recent years considerable progress has been made in the adoption of electrical traction, the benefit of which is now enjoyed by a number of the principal towns of the Commonwealth.

In many parts of Australia private lines used for special purposes in connexion with the timber, mining, sugar, or other industries are often called tramways, but they are really private railways, and the traffic on them has nothing in common with that of the street tramways for the conveyance of passengers, which are dealt with in the present section.

(i) *Total Mileage Open and Classification of Lines.* The following tables shew the total mileage of tramway lines open for general passenger traffic in each State and in the Commonwealth for the year 1919–20, and also in the Commonwealth as a whole for the years 1910–11 to 1919–20, classified (*a*) according to the motive power utilised, (*b*) according to the nature of the authority by which the lines are controlled and (*c*) according to gauge :—

TRAMWAYS.—CLASSIFICATION OF MILEAGE OPEN FOR PASSENGER TRAFFIC IN EACH STATE AND IN THE COMMONWEALTH, 1919-20.

Nature of Motive Power, Controlling Authority, and Gauge.	N.S. Wales.	Victoria.	Q'land.	South Australia.	Western Australia.	Tasmania.	C'wealth.
ACCORDING TO MOTIVE POWER.							
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Electric	155.35	105.26	42.60	66.03	50.66	23.13	443.03
Steam	73.96	1.15	6.00	..	17.75	34.03	132.89
Cable	..	45.90	..	..	..	..	45.90
Horse	..	0.63	..	*a*17.36	7.16	7.60	32.75
Total ..	229.31	152.94	48.60	83.39	75.57	64.76	654.57
ACCORDING TO CONTROLLING AUTHORITY.							
Government ..	225.81	118.13	..	17.36	52.16	27.13	440.59
Municipal ..	..	..	6.00	66.03	8.66	23.13	103.82
Private	3.50	34.81	42.60	..	14.75	14.50	110.16
Total ..	229.31	152.94	48.60	83.39	75.57	64.76	654.57
ACCORDING TO GAUGE.							
Gauge—							
5 ft. 3 in. ..	..	5.16	..	7.35	..	..	12.51
4 ft. 8½ in. ..	229.31	146.63	42.60	66.03	..	..	484.57
3 ft. 6 in. ..	..	1.15	6.00	10.01	58.66	50.26	126.08
2 ft. 0 in. ..	..	..	..	..	16.91	14.50	31.41
Total ..	229.31	152.94	48.60	83.39	75.57	64.76	654.57

(*a*) 16.36 miles included in South Australian Government railway mileage.

TRAMWAYS.—CLASSIFICATION OF MILEAGE OPEN FOR PASSENGER TRAFFIC IN THE COMMONWEALTH, 1910-11 TO 1919-20.

Nature of Motive Power, Controlling Authority, and Gauge.	1910–11.	1911–12.	1912–13.	1913–14.	1914–15.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
ACCORDING TO MOTIVE POWER.										
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Electric ..	297.34	322.24	345.07	365.39	386.30	404.76	422.89	426.40	430.87	443.03
Steam	96.66	91.78	91.65	108.65	112.50	112.50	113.06	120.61	127.69	132.89
Cable	46.04	46.04	46.04	46.04	46.04	46.04	46.04	46.04	45.92	45.90
Horse	60.61	51.44	50.51	54.51	53.05	42.97	43.61	41.12	23.74	32.75
Total ..	500.65	511.50	533.27	574.59	597.89	606.27	625.60	634.17	628.22	654.57
ACCORDING TO CONTROLLING AUTHORITY.										
Government ..	241.72	247.61	256.98	309.44	319.50	322.75	371.08	372.44	364.89	440.59
Municipal ..	78.69	82.86	102.85	114.55	129.86	143.32	158.13	158.03	159.17	103.82
Private	180.24	161.03	173.46	150.60	148.53	140.20	96.39	103.70	104.16	110.16
Total ..	500.65	511.50	533.27	574.59	597.89	606.27	625.60	634.17	628.22	654.57
ACCORDING TO GAUGE.										
Gauge—										
5 ft. 3 in. ..	14.77	14.77	14.80	14.80	15.12	15.12	12.51	12.51	12.51	12.51
4 ft. 8½ in. ..	374.17	384.89	407.62	420.93	438.97	444.60	467.46	469.76	473.28	484.57
3 ft. 6 in. ..	83.96	84.09	86.02	114.03	118.97	121.72	121.45	120.41	118.43	126.08
2 ft. 0 in. ..	27.75	27.75	24.83	24.83	24.83	24.83	24.18	31.49	24.00	31.41
Total ..	500.65	511.50	533.27	574.59	597.89	606.27	625.60	634.17	628.22	654.57

2. New South Wales.—In this State the tramways, with but few comparatively *unimportant exceptions*, are the property of the Government, and are under the control of the Railway Commissioners.

(i) *Government Tramways.* In Sydney and suburbs the Government tramways are divided into distinct systems. There were in June, 1920, seven such systems in operation within the metropolitan area, the most important being the City and Suburban lines, 112.97 miles in length (207.10 miles single track); the North Shore line, 21.93 miles in length (37.20 miles single track); the Ashfield to Mortlake line, 8.47 miles in length (15.12 miles single track); Manly to the Spit, Brookvale, and Narrabeen, 10.73 miles in length (15.47 miles single track); and Rockdale to Brighton-le-Sands, 1.25 miles in length (single track). The last-mentioned line was purchased from a private company and opened for traffic on 7th June, 1914. All of these systems are now operated by electricity. There are two systems on which the motive power used is steam, namely—(*a*) from Kogarah to Sans Souci, 5.56 miles in length (6.99 miles single track), and (*b*) from Arncliffe to Bexley, 2.62 miles long (single track).

There are also Government steam tramways in operation at Newcastle, Broken Hill, Parramatta, from East to West Maitland, and from Sutherland to Cronulla. The gauge of line on all the Government tramways is 4 ft. 8½ in.

(*a*) *Sydney Tramways.* In October, 1862, a horse tramway, 1¾ miles long, was opened for traffic in Sydney. Owing to the rails being laid higher than the road surface, the inconvenience thus caused to other traffic necessitated its removal under the authority of an Act passed in November, 1865, and it was not until the 15th September, 1879, that the first steam tramway was opened, running from Bridge-street to Hay-street via Elizabeth-street. In the following few years the steam tramways were considerably extended. The electric system was commenced by the opening of a section of the North Sydney lines on the 20th September, 1893. This was followed by the opening of the Ocean-street-Rose Bay line on the 4th October, 1898, and by the opening of the George-street-Pyrmont line on the 8th September, 1899, which introduced the electric system into the city. The tramways in the heart of the city, running along King-street to the suburb of Woollahra, as well as those in North Sydney, were originally worked by underground cables, and have since been converted into electric lines on the overhead trolley system. With the exception of the Kogarah-Sans Souci and the Arncliffe-Bexley lines, the whole of the steam tramways in Sydney and suburbs have now been converted into electric lines, and provision for the extra power required for the electrification of the former of these two lines has been made at the central power station.

(*b*) *Other Tramway Systems.* In Newcastle the first section of the tramways, from Perkins-street to Plattsburg, was opened on 31st December, 1887; the total length open on the 30th June, 1920, was 34.07 miles (44.42 miles single track). At Broken Hill and Parramatta the first sections of the tramways were opened in 1902. On the 30th June, 1920, the mileage open at Broken Hill amounted to 10.05 miles (11.44 miles single track), and at Parramatta to 6.69 miles (single track). The line from East to West Maitland, 4.06 miles long (single track), was opened in February, 1909, and the line from Sutherland to Cronulla, 7.40 miles long (single track), on the 12th June, 1911. Further particulars are given below.

(*c*) *Particulars of all Government Tramways.* The following table shews the total length, the capital cost, the gross revenue, working expenses, net earnings, interest, percentages of working expenses on gross revenue, and of net earnings on capital cost, passengers carried and persons employed for the financial years 1916 to 1920:—

NEW SOUTH WALES.—PARTICULARS OF WORKING OF GOVERNMENT TRAMWAYS, 1916 TO 1920.

Year ended 30th June—	Mileage Open for Traffic. (Route.)	Total Cost of Construction and Equipment.	Gross Revenue.	Working Expenses.	Net Earnings.	Interest.	Percentage of Working Expenses on Gross Revenue.	Percentage of Net Earnings on Capital Cost.	Passengers carried.	Persons employed.
	Miles.	£	£	£	£	£	%	%	No. '000	No.
1916 ..	220.83	8,166,423*a*	1,991,828	1,602,850	388,978	302,686	80.47	4.76	292,022	9,606
1917 ..	223.98	8,309,629*a*	2,008,539	1,691,367	317,172	335,361	84.21	3.82	295,304	9,763
1918 ..	225.35	8,470,091*a*	1,992,641	1,603,260	389,381	348,546	80.46	4.60	255,741	8,955
1919 ..	225.54	8,568,189*a*	2,237,761	1,850,784	386,977	398,529	82.71	4.52	268,795	9,028
1920 ..	225.81	8,768,548*a*	2,881,797	2,486,121	395,676	404,125	86.27	4.51	324,885	8,976

(*a*) £47,455 of this sum has been paid from the Consolidated Revenue, and no interest is payable thereon.

The net result, after providing for all working expenses and £404,125 for interest on the capital invested, was a loss of £8,448 in 1919-20 as compared with a profit of £18,448 in the preceding year. During the year 1919-20, 324,884,651 passengers were carried, an increase of 56,086,837 as compared with the previous year.

(*d*) *Particulars of Different Systems of Government Tramways.* In the subjoined statement particulars are given of the working of the electric and steam tramways in Sydney, and of other tramways under Government control in 1919-20:—

NEW SOUTH WALES.—PARTICULARS OF WORKING OF VARIOUS GOVERNMENT TRAMWAYS, 1919-20.

Line.	Mileage Open for Traffic.		Total Cost of Construction and Equipment.	Gross Revenue.	Working Expenses.	Net Earnings. (*a*)	Interest.	Profit or Loss. (*a*)	Percentage of Working Expenses on Gross Revenue.	Percentage of Net Earnings on Capital Cost. (*a*)
	Route.	Track.								
	Miles.	Miles.	£	£	£	£	£	£	%	%
Sydney and Suburban—										
Electric	155.35	276.14	7,842,549	2,676,748	2,246,674	+ 430,074	363,933	+ 66,141	83.93	+ 5.49
Steam	8.19	9.61	51,711	17,544	22,658	− 5,114	2,423	− 7,537	129.15	− 9.89
Total	163.54	285.75	7,894,260	2,694,292	2,269,332	+ 424,960	366,356	+ 58,604	84.23	+ 5.38
Parramatta—Steam	6.69	6.69	39,306	11,377	12,733	− 1,356	1,842	− 3,198	119.92	− 3.45
Sutherland to Cronulla—Steam	7.40	7.40	62,427	15,300	13,697	+ 1,603	2,442	− 749	88.98	+ 3.28
Newcastle—Steam	34.07	44.42	655,236	144,449	157,501	− 13,052	27,448	− 40,500	109.03	− 1.99
East to West Maitland—Steam	4.06	4.06	34,060	5,784	11,394	− 5,610	1,730	− 7,340	197.00	−16.04
Broken Hill—Steam	10.05	11.44	92,353	10,596	21,554	− 10,958	4,307	− 15,265	204.16	−11.86
Total	225.81	359.76	8,768,548	2,881,798	2,486,121	+ 395,677	404,125	− 8,448	86.27	+ 4.51

(*a*) + indicates a profit; − indicates a loss.

The total capital cost shewn in the preceding table was made up as follows:—

CAPITAL COST OF NEW SOUTH WALES GOVERNMENT TRAMWAYS AS AT 30th JUNE, 1920.

Permanent Way.	Rolling Stock.	Power-houses, Sub-stations, and Plant.	Machinery.	Workshops.	Furniture.	Store Advances Account.	Total.
£	£	£	£	£	£	£	£
4,508,008	1,830,822	1,818,227	152,618	232,481	2,392	224,000	8,768,548

The average cost per mile open was £19,964 for permanent way and £18,868 for all other charges, making a total of £38,832 per mile.

During the year 1919-20, one new extension, 0.80 mile in length, was opened for traffic.

(e) *Sydney Electric Tramways.* The current for the operation of the City and Suburban tramways is generated at the power-houses at Ultimo and White Horse Bay, which have been erected at a total cost of £1,818,227, including the cost of the sub-stations and plant. The total output of the power-houses, for both lighting and traction purposes, during the year 1919-20 was 114,124,798 kilowatt-hours, of which the direct-current supply was 73,538, and the alternating current 114,051,260 kilowatt-hours. The following table gives particulars of the working of the electric tramways for the financial years 1915-16 to 1919-20:—

NEW SOUTH WALES.—PARTICULARS OF SYDNEY ELECTRIC TRAMWAYS, 1915-16 TO 1919-20.

Year ended 30th June—	Mileage Open for Traffic.		Total Cost of Construction and Equipment.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.
	Route.	Track.				
	Miles.	Miles.	£	Kilowatt-hours.	No.	No.
1916 ..	151.05	266.18	7,526,701	81,688,434	25,008,055	272,048,293
1917 ..	152.99	270.84	7,615,110	80,608,220	23,955,722	275,180,334
1918 ..	154.37	274.55	7,738,377	73,384,629	20,618,808	239,442,696
1919 ..	154.56	274.75	7,779,227	83,780,703	23,298,238	250,706,503
1920 ..	155.35	276.00	7,842,549	92,074,950	25,394,701	304,986,683

Year ended 30th June—	Gross Revenue.	Working Expenses.	Net Revenue.	Percentage of Working Expenses on Gross Revenue.	Cars in Use.	Persons Employed.
	£	£	£	%	No.	No.
1916	1,838,708	1,452,470	386,238	78.99	1,402	9,308
1917	1,853,399	1,535,423	317,976	82.84	1,398	9,295
1918	1,847,868	1,457,349	390,519	78.87	1,398	8,463
1919	2,063,055	1,673,536	389,519	81.12	1,393	8,610
1920	2,676,748	2,246,674	430,074	83.93	1,394	8,440

(ii) *Private Tramways.* A private steam tramway passes through the township of Parramatta. Commencing at the park gates, it runs as far as the Duck River, a distance of 3¼ miles, where it connects with the Parramatta River steamers, conveying passengers and goods to and from Sydney. This line, the gauge of which is 4 ft. 8½ in., was opened for traffic in 1883. In 1920 the number of tram miles run was 18,200, and the number of passengers conveyed 161,496.

(iii) *Sydney Harbour Ferries.* As the ferry services on the waters of Port Jackson are mainly supplementary to the suburban railway and tramway systems, it has been thought advisable to include them here rather than under Shipping. The figures for the year 1919-20 are based on returns shewing the working of two companies for that year, and for one company in respect of the year 1918-19 as particulars are not yet available for the year under review. The returns shew that these companies had 62 boats in commission, which were licensed to carry a total of 40,371 passengers, or an average of

651 per boat and per trip. The total number of passengers carried during the year is stated as 36,600,759, an average of 100,276 per day. In addition to the ordinary passenger traffic there are two lines providing for vehicular traffic, which afford the only rapid means of transit for such traffic between the city and the northern suburbs. The three companies employed during the year a total of 990 persons. The gross revenue amounted to £494,789, and the expenditure to £400,621, thus giving a net revenue of £94,168. The services are well managed, and the boats constructed during recent years—double-ended screwboats—are claimed to be superior in size and equipment to boats employed on similar service in any part of the world.

3. Victoria.—In Melbourne there are several tramway systems carried on under the control of various authorities, the most important being the cable system worked by the Melbourne Tramway and Omnibus Company up to the 1st July, 1916, and since that date by the Melbourne and Metropolitan Tramway Board, to which reference will be made further on. There are also four lines of electric tramways, viz.:—(a) St. Kilda to Brighton, belonging to the Government and under the control of the Railway Commissioners; (b) an electric tramway between Sandringham and Black Rock, 2.41 miles in length, which has been constructed by the Railway Department and was opened for traffic on 11th March, 1919; (c) Flemington Bridge to the Saltwater River and Keilor-road, owned by a private company; and the following lines controlled by the Melbourne and Metropolitan Tramways Board, viz.:—(d) lines connecting Prahran, Windsor, St. Kilda and Elsternwick with Glen Huntly, Caulfield, Malvern, Glenferrie and Kew, formerly controlled by the Prahran and Malvern Tramways Trust; (e) Prince's-bridge to Burwood; Burke-road to Boundary-road, Wattle Park; and Bridge-road, Richmond, to Power-street, formerly owned by the Hawthorn Tramways Trust; (f) lines from Queensberry-street, Melbourne, to Bell-street, Coburg, and Moreland-road to Baker's-road, Fawkner, formerly owned by the Melbourne, Brunswick, and Coburg Tramways Trust; (g) the Fitzroy, Northcote and Preston Tramway and (h) The Footscray Tramway. A cable tramway, 2½ miles in length, between Clifton Hill and Preston, was owned by the Northcote municipality, but was, on 2nd February, 1920, transferred to the control of, and has since been operated by, the Melbourne and Metropolitan Tramways Board. There is a short steam tramway,* about 1 mile long, at Sorrento, and there are also systems of electric tramways at Ballarat, Bendigo, and Geelong, constructed and run by private companies. A number of tramways has been constructed for special purposes in various parts of the State under the provisions of the Tramway Act 1890. These, however, correspond to the description of private railways referred to in sub-section 1 hereof. A tramway to the Zoological Gardens, with horse traction, is operated by the Melbourne and Metropolitan Tramways Board.

(i) *Melbourne Cable Tramways.* A short account of the formation of the Melbourne Tramway and Omnibus Company, and of the Tramway Trust, will be found in previous issues of this book. (See Year Books No. 7, page 652, and No. 9, page 679.) The company was required by the original Act, as amended in 1892, to complete the tramways by the end of the year 1893, and in return a thirty-two years' lease of the tramways was granted to it, dating from the 1st July, 1884—when the liability for interest on the loans commenced—and expiring on the 1st July, 1916. The total amount the Trust was empowered to borrow was £1,650,000, which was raised in London by means of debentures bearing interest at 4½ per cent. The premiums received amounted to £55,794, making a total of £1,705,794. This amount had been expended by the end of the year 1893, when further loan expenditure ceased. Up to the 30th June, 1919, the total cost of construction and equipment of the tramways amounted to £2,078,257. The first line—that to Richmond—was opened for traffic on the 11th November, 1885, and the work being rapidly pushed on, the other lines were opened at short intervals, and the whole system was completed in 1891. The complete system consisted of 43.68 miles of double-track cable lines, using constantly over 90 miles of wire rope, and 4.48 miles of horse tram line. Of the latter, 1.79 miles were transferred to the Kew Council in November, 1914, and 2.06 miles to the Hawthorn Tramway Trust in January, 1916, for electrification, leaving 0.63 mile of horse tramway at Royal Park. The gauge of track is 4 feet 8½ inches. The company also had omnibuses at work for many years down to 3rd May, 1916, when the East Brunswick line of omnibuses ceased running owing to the construction of an electric tramway along the route.

(a) *Particulars of Working.* The subjoined statement shows the tram mileage, the number of passengers carried, and the revenue and expenditure for the years 1916 to 1920 :—

MELBOURNE CABLE TRAMWAYS.(b)—PARTICULARS OF WORKING, 1916 TO 1920.

Year ended 30th June—	Mileage Open (Route).			Mileage Run during Year.				Number of Passengers Carried.			
	Cable.	Horse.	Total.	Tram.		Omnibus.	Total.	Tram.		Omnibus.	Total.
				Cable.	Horse.			Cable.	Horse.		
	Miles.	Miles.	Miles.	Miles.	Miles. c	Miles.	Miles.	No.	No.	No.	No.
1916c	43.68	0.63	44.31	11,977,916		68,569	12,046,485	96,290,131		412,812	96,702,943
1917c	43.68	0.63	44.31	12,413,485	10,444	..	12,423,929	(a)	(a)	..	103,118,377
1918c	43.68	0.63	44.31	12,822,147	10,882	..	12,833,029	112,754,979	279,178	..	113,034,157
1919c	43.68	0.63	44.31	13,138,992	10,645	..	13,149,637	118,043,604	259,177	..	118,302,781
1920b	45.90	0.63	46.53	13,424,488	10,648	..	13,435,136	133,378,390	296,651	..	133,675,041

Year ended 30th June—	Traffic Revenue.				Working Expenses.				Percentage of Working Expenses on Revenue.	No. of Employees at end of Year.
	Tram.		Omnibus	Total.	Tram.		Omnibus.	Total.		
	Cable.	Horse.			Cable.	Horse.				
	£	£	£	£	£	£	£	£	%	No.
1916 ..	807,356		1,721	809,077	(a)		(a)	435,423	53.82	1,992
1917 ..	(a)	(a)	..	841,784	(a)	(a)	..	462,132	54.90	2,104
1918 ..	902,471	549	..	903,020	513,717	735	..	514,452	56.97	2,273
1919 ..	945,286	513	..	945,799	577,736	1,154	..	578,890	61.21	2,400
1920 ..	1,075,236	606	..	1,075,842	722,482	1,564	..	724,046	67.30	2,786

(a) Not available. (b) Inclusive of Northcote Cable Tramway from 2nd February, 1920, to 30th June, 1920. (c) Exclusive of Northcote Cable Tramway.

(b) *Transfer of Cable Trams.* On the 30th December, 1915, the Victorian Government appointed a Tramway Board of five members to take over the tramways as from 1st July, 1916, and in due course the Board entered into possession of the tramway properties. The amount of compensation to be paid to the company in respect of the rolling-stock, car-houses, and other assets handed over by it to the Tramway Board was the subject of arbitration and of an eventual appeal to the Privy Council, which upheld the award by Mr. Justice Cussen under which a sum of £335,000 with interest at 5 per cent. from the 1st July, 1916, was payable to the company.

An action by the Tramway Board against the company to recover a sum of £587,915, for alleged breaches of the terms of the lease of the cable tramways was, after several days had been spent in part hearing the case, settled out of court by agreement between the parties.

(c) *Metropolitan Tramway Board.* In a previous issue of the Year Book (see No. 12, pp. 698–9) reference was made to the *Melbourne and Metropolitan Tramways Act* 1918, and to the terms under which it was to come into operation. On 2nd July, 1919, the appointments of the chairman and other members of the Tramway Board were made by the Governor-in-Council, and it was arranged that the Board should take over control of the Melbourne Cable Tramway System and of the Royal Park Horse Tramway on the 1st November, 1919.

On the 6th January, 1920, a proclamation was made under which the Board were to assume control of the Prahran and Malvern, Hawthorn, Melbourne, Brunswick and Coburg, Fitzroy, Northcote and Preston, and Footscray Tramway Trusts on the 2nd February following, after which date the Tramway Trusts were to cease to exist. The

Board thus assumed control of all the Metropolitan tramways, with the exception of the North Melbourne Electric Tramway, which the Board has power to acquire.

(ii) *Electric Tramways.* As already mentioned, there are in Melbourne four electric tramway systems in operation, viz. :—(*a*) the St. Kilda-Brighton line, (*b*) the Sandringham-Black Rock line, (*c*) the North Melbourne tramways; and the lines controlled by the Melbourne and Metropolitan Tramways Board (previously referred to), viz. (*d*) The Prahran and Malvern Tramways; (*e*) The Hawthorn Tramways; (*f*) The Melbourne, Brunswick and Coburg Tramways; (*g*) The Fitzroy, Northcote and Preston Tramways; and (*h*) The Footscray Tramways.

(*a*) *The St. Kilda-Brighton Line.* Under the St. Kilda and Brighton Electric Street Railway Act 1904, the Board of Land and Works was authorised to construct a tramway from St. Kilda to Brighton. The amount of interest payable on the cost of the land acquired for the tramway was guaranteed by the municipalities of St. Kilda and Brighton for a period of twenty years, and authority was given by the Act to the municipalities to levy either a general or special rate not exceeding one shilling in the pound for the purpose of paying the guarantee. The profit, if any, during the first twenty years is to be set off in reduction of the guarantee. The line was opened for traffic between St. Kilda and Park-street, Middle Brighton, on the 7th May, 1906, and the extension to Brighton Beach was opened on the 22nd December following. The capital cost to the 30th June, 1920, exclusive of rolling stock, was £108,252, and of rolling stock £41,876, making a total of £150,128. The gauge of track is 5 ft. 3 in. The subjoined statement gives particulars of the working of this line for the financial years ended the 30th June, 1916 to 1920:—

ST. KILDA-BRIGHTON ELECTRIC STREET TRAMWAY, 1916 TO 1920.

Year ended 30th June—	Mileage Open (Route).	Total Cost of Construction and Equipment.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Interest.	Net Profit or Loss. (*a*)
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	£	£
1916 ..	5.16	132,300	810,510	597,819	3,126,984	25,580	22,844	4,697	– 1,961
1917 ..	5.16	156,242	780,320	572,735	3,450,442	27,919	20,502	6,250	+ 1,167
1918 ..	5.16	158,986	745,853	521,525	3,854,677	31,614	23,658	6,359	+ 1,602
1919 ..	5.16	164,347	982,910	527,305	4,945,023	40,948	27,297	6,574	+ 6,287
1920 ..	5.16	(*b*)150,128	1,381,821	551,307	6,805,892	50,494	42,813	6,005	+ 1,676

(*a*) Profit is indicated by +, loss by –. (*b*) Cost of Rolling Stock for Sandringham–Black Rock electric street railway was included under this head in preceding years.

The average fare paid per passenger was 1.76 pence in 1919–20 as against 1.94 pence in 1918–19. The gross revenue in 1919–20 was 21.98 pence per passenger car mile and £4,893 per mile of single track open.

(*b*) *The Sandringham-Black Rock Line.* This line has a length of 2.41 miles and, as already mentioned, was opened for traffic on 11th March, 1919.

The capital cost to the 30th June, 1920, was £57,910. The cost of rolling-stock at 30th June, 1919, is included in that for the St. Kilda–Brighton line. The gauge of this line is 4 ft. 8½ in. The subjoined statement gives particulars of the working of this line to the 30th June, 1920:—

SANDRINGHAM-BLACK ROCK ELECTRIC STREET TRAMWAY, 1920.

Year ended 30th June—	Mileage Open (Route).	Total Cost of Construction.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Interest.	Net Profit.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	£	£
1919 ..	2.41	(*a*) 42,706	35,650	29,006	816,746	3,751	1,792	529	1,430
1920 ..	2.41	(*b*) 57,910	161,270	113,405	2,438,162	11,597	7,898	2,316	1,383

(*a*) Exclusive of Rolling Stock. (*b*) Inclusive of Rolling Stock.

(c) *The North Melbourne Tramways*, extending through the northern suburbs to the Saltwater River and to Keilor-road, were constructed by a private company, and were opened for traffic on the 11th October, 1906. The route and track mileage for year ended 30th September, 1920, were 7.51 and 11.43 miles respectively, the gauge of line being 4 feet 8½ inches. The number of passengers carried during the same period was 3,613,997. The current used during the year for traction purposes was 800,048 kilowatt-hours, while the number of persons employed was 129.

(d) *The Prahran and Malvern Tramways.* The lines were constructed under the control of a trust, which consisted of seven members appointed from the councils of Prahran, Malvern, St. Kilda, Caulfield, Hawthorn, Kew, and Camberwell. At the 30th June, 1920, the total route mileage open was 35.02 miles, the total track mileage being 66.12 miles, and the total capital cost £903,897. The gauge of the track is 4 ft. 8½ in. The current is supplied by the Melbourne Electric Supply Company Limited at a price varying according to the consumption of current and the price of fuel. The first section of the lines was opened for traffic on 31st May, 1910. During the nine months ended 30th June, 1920, the current used for traction puposes was 6,046,889 kilowatt-hours, and the number of tram miles run was 2,562,499, the number of passengers carried 29,504,378, the gross revenue £203,797, and the working expenses £146,991. The number of cars in use was 100, and the number of persons employed 707.

(e) *The Hawthorn Tramways.* The first section of these tramways, that from Prince's-bridge to Power-street, Hawthorn, was opened for traffic on 6th April, 1916, and on 30th June, 1920, the route and track mileages in operation were 11.12 and 17.93 miles respectively. During the nine months ended 30th June, 1920, the current used for traction purposes was 2,206,191 kilowatt-hours, the tram miles run 776,719, the number of passengers carried 8,448,862, the gross revenue £64,598, and the working expenses £49,651. The number of cars in use was 32, the number of persons employed 201, and the capital cost £300,171.

(f) *The Melbourne, Brunswick and Coburg Tramways.* The first section of these tramways, that between Moreland-road and Bell-street, was opened for traffic on 27th April, 1916. At the 30th June, 1920, the route and track mileages open for traffic were 7.07 and 12.32 miles respectively. During the nine months ended 30th June, 1920, the current used for traction purposes was 1,310,830 kilowatt-hours, the tram miles run 547,335, the number of passengers carried 5,424,331, the gross revenue £37,623, and the working expenses £30,453. Eighteen cars were in use, the number of persons employed was 147, and the capital cost £187,755.

(g) *Fitzroy, Northcote and Preston Tramway.* This line was opened for traffic on 1st April, 1920, and at 30th June, 1920, the route and track mileage in operation were 5.82 miles and 7.73 miles respectively. During the period (three months) the current used for traction purposes was 123,456 kilowatt-hours, tram miles run 77,666, and number of passengers carried 476,183. The gross revenue was £3,365, and working expenses £3,645. Eight cars were in use, and the number of persons employed was 45. The capital cost was £137,771.

(h) *Footscray Tramway.* The construction of this line was practically completed at 30th June, 1920, but the opening for traffic was deferred until 6th September, 1921, pending the supply of electric power. The gauge is 4 ft. 8½ in. and the route and track mileage are respectively 4.73 miles and 5.31 miles. The capital cost was £111,552.

(i) *The Ballarat and Bendigo Electric Tramways* are under the control of a private company, and run along the main streets and to and from the outlying suburbs of the two cities. The total length of lines open for traffic is 21.25 route miles and 25.86 track miles, the gauge being 4 ft. 8½ in. During the year ended 31st December, 1920, 5,907,443 passengers were carried, the gross revenue being £56,757, and the working expenses £38,920. The number of cars in use was 55, and the number of persons employed 133.

(j) *The Geelong Electric Tramways*, which are privately owned, were opened for traffic on the 14th March, 1912, and up to the 31st August, 1920, the cost of construction and equipment, exclusive of generating plant, totalled £61,861. The system has a route and track mileage of 4.90 and 5.67 miles respectively, the gauge being 4 ft. 8½ in.

The car mileage for the year ending on the last-mentioned date was 222,225 miles, and the number of passengers carried 1,905,542. For the same period the revenue was £21,037, and the expenditure £14,837.

(k) *Particulars of Working of all Electric Tramways.* The following table gives particulars of the working of all electric tramways in Victoria for each year from 1916 to 1920 inclusive :—

VICTORIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS, 1916 TO 1920.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1916	83.91	1,765,854	9,553,034	6,327,895	39,928,454	288,206	206,367	236	1,009
1917	89.08	1,861,771	11,910,707	6,462,318	51,586,576	373,594	271,315	255	1,074
1918	92.17	1,939,687	13,169,343	6,775,538	57,020,726	432,921	318,163	268	1,167
1919	94.58	2,027,057	13,955,124	6,832,873	60,753,276	463,320	344,220	274	1,318
1920	105.26	2,442,746	15,758,101	7,302,713	74,350,826	553,507	418,462	294	1,554

4. **Queensland.**—In this State there is a system of electric tramways running through the streets of the city and suburbs of Brisbane and controlled by a private company which has its head office in London. The total length of the Brisbane system was 42.60 route miles at the end of the year 1920. There is also a steam tramway in operation at Rockhampton having a length of 6 route miles.

(i) *Brisbane Electric Tramways.* These tramways are run on the overhead trolley system, the voltage of the line current being 550. The total cost of construction and equipment to the end of the year 1917 was £1,435,414, the gauge of line being 4 ft. 8½ in. The following table gives particulars of these tramways for the calendar years 1916 to 1920 :—

QUEENSLAND.—BRISBANE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING 1916 TO 1920.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1916	40.45	1,468,906	9,272,709	4,286,802	51,029,669	364,745	216,607	172	921
1917	41.58	1,435,414	8,964,113	4,377,104	51,860,308	371,850	257,035	172	1,121
1918	41.58	(a)1,435,414	9,458,441	4,379,679	57,456,832	412,569	264,858	173	1,103
1919	42.60	(a)1,435,414	10,309,349	4,600,482	61,415,350	445,333	295,697	174	1,072
1920	42.60	(a)1,435,414	11,000,875	4,934,043	69,236,690	527,284	387,456	178	1,130

(a) Figures for 1917.

(ii) *Rockhampton Municipal Tramways.* These tramways were opened for traffic in 1909, the motive power being steam. The length of line is 6 route miles, and the gauge 3 ft. 6 in. The capital cost to 31st December, 1920, was £42,000. During the year 1,617,922 passengers were carried, the revenue being £15,437, and working expenses £15,911. The number of the staff at end of year was 48.

(iii) *Sugar-Mill Tramways.* In various parts of Queensland there are tramways used in connexion with the sugar-milling industry, chiefly for the purpose of hauling cane to the mills. Some of these lines are of a permanent nature, running through sugar-cane plantations, while others are portable lines running to various farms.

5. ***South Australia.***—Up to the year 1906 the tram service in the principal streets of Adelaide and suburbs was a horse system run by various private companies. Power to acquire these lines, and to provide for their extension and management by means of a Trust, was given to the Government by the Municipal Tramways Trust Act 1906. In accordance with the provisions of the Act, a Trust consisting of eight members, of whom two were nominated by the Governor, two elected by the City Corporation, and two each by the Suburban Corporations and the District Councils involved, was formed in 1907, and a length of 49 route miles of horse traction tramways was purchased from the private companies for a sum of £282,582. On the 10th March, 1909, the electric car system was inaugurated on the Kensington route. At the end of July, 1920, a length of 66.03 route miles had been electrified and opened for traffic, the corresponding length of track opened being 114.00 miles, all of which are of a gauge of 4 ft. 8½ in. The cost of construction and equipment on the 31st July, 1920, was £1,793,298. The following table gives particulars of the tramways for the years ended 31st July, 1916 to 1920:—

SOUTH AUSTRALIA.—ADELAIDE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING, 1916 TO 1920.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1916	54.42	1,486,546	9,286,910	4,719,043	43,141,885	322,759	193,965	170	1,120
1917	64.46	1,703,151	10,382,667	4,954,846	45,431,691	338,361	211,662	170	1,200
1918	65.66	1,751,943	10 758,897	5,350,776	46,465,258	414,836	250,586	174	1,099
1919	65.66	1,789,487	10,730,307	5,176,264	45,892,376	428,477	284,993	185	1,337
1920	66.03	1,793,298	11,261,046	5,407,654	50,815,848	505,303	339,166	190	1,270

There are also in South Australia 19.86 miles of Government horse tramways in country districts, worked in connexion with the railway system, of which 17.36 miles are used for passenger service, and 2.50 miles for special purposes. The subjoined statement gives various particulars of these lines:—

SOUTH AUSTRALIA.—PARTICULARS OF HORSE TRAMWAYS, 1920.

GOVERNMENT TRAMWAYS.

Particulars.	Length.	Gauge.		Nature of Traffic.
	Miles.	ft.	in.	
Moonta, Moonta Bay, and Hamley Flat	(a)5.15	5	3	Passengers and goods
Gawler	(a)1.20	5	3	" "
Victor Harbour and Breakwater ..	1.00	5	3	" "
Dry Creek and Magazine	1.00	2	0	Explosives
Magazine and Broad Creek	1.50	2	0	"
Port Broughton and Mundoora ..	(a)10.01	5	6	Passengers and goods

(a) Included in mileage of Government railways.

6. ***Western Australia.***—Apart from the electric tramways, there are in this State several tramways, amounting in all on the 30th June, 1920, to a length of 24.91 miles, which are the property of the Government. Of these, which are under the control of the Harbour and Light Department, the most important is the line between Roebourne and Cossack, constructed on a 2-ft. gauge. The length of this line is 12.50 miles, and it is worked by steam. The remaining 12.41 miles belonging to the Government are made up of several short lengths, worked by steam or horses, in connexion with the jetties at certain ports for the purpose of providing the necessary communication between such

jetties and the goods sheds or warehouses. In addition to these Government lines there are electric tramway systems at Perth, under Government control; at Kalgoorlie and Boulder City, carried on by private companies; and at Fremantle, under municipal control.

(i) *Steam and Horse Tramways.* Particulars as to the working of the Government steam or horse tramways for the year ended 30th June, 1920, shew that the capital cost of the lines to that date was £85,451, the gross revenue for the year being £8,281, and the working expenses £3,495.

(ii) *Electric Tramways.* There are now four towns in Western Australia which enjoy the benefits of electric tramway systems, namely, Perth, Fremantle, Kalgoorlie, and Boulder.

(a) *The Perth Electric Tramways* were opened for traffic by a private company on the 24th September, 1899, and the system has since been extended to many of the suburbs. This tramway system was taken over by the Government on 1st July, 1913, and is now running in conjunction with the Government railways. On the 30th June, 1920, the route and track miles open for traffic were 27.25 and 36.10 miles respectively, the total cost of construction and equipment to that date being £619,874. During the year, 19,175,143 passengers were carried, the gross revenue being £187,981 and the working expenses £149,652. Eighty-three motors were in use, and the number of employees was 436. The gauge of line is 3 ft. 6 in.

(b) *The Fremantle Tramways* were opened in November, 1905, under the control of the municipality. On the 31st August, 1920, there were 8.66 route and 11.55 track miles of line open for traffic, the cost of construction and equipment at that date being £103,405. This line has a gauge of 3 ft. 6 in. During the year 6,064,690 passengers were carried, the gross revenue being £53,223 and the working expenses £43,927. Twenty-one cars were in use, and the number of employees was 135.

(c) *The Kalgoorlie and Boulder Tramways* are run by a private company, the first line being opened in 1902. At the beginning of 1904 legislative authority was given for the construction of lines in Boulder and suburbs, and in November, 1904, the last section of the Boulder system was completed. At the end of the year 1920 the total mileage of the whole system—in Kalgoorlie and Boulder—amounted to 14.75 route or 20.50 track miles, the total cost of construction and equipment being £452,318. During the year 2,082,984 passengers were carried, the gross revenue being £36,913 and the working expenses £27,466. Twenty-five motors and seven trailers were in use, and the number of employees was 58. The gauge of this line is 3 ft. 6 in.

(d) *The Leonora-Gwalia Tramway*, two and a quarter route miles in length, was initially a steam tramway. It was opened for traffic by electrification under municipal control on 5th October, 1908, but is now worked with a petrol motor by a private syndicate. It has a gauge of 3 ft. 6 in.

(e) *Particulars of Working of all Electric Tramways.* The subjoined table shews so far as returns are available, particulars of the working of all electric tramway systems in the State for the years 1916 to 1920:—

WESTERN AUSTRALIA.—PARTICULARS OF ELECTRIC TRAMWAYS, 1916 TO 1920.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1916	52.96	1,132,169	a5,191,298	2,851,959	18,315,719	169,140	139,633	123	573
1917a	51.61	1,161,478	5,790,337	2,955,508	19,178,047	197,880	153,847	122	596
1918	50.62	1,152,417	6,116,087	3,127,284	21,218,019	215,011	169,058	130	609
1919	50.22	1,150,0 8	6,922,421	2,951,653	20,954,579	209,664	170,261	130	545
1920	50.66	1,175,597	7,724,522	3,612,417	27,322,826	278,117	221,045	136	629

(a) Exclusive of Leonora tramway.

(iii) *Perth Ferries.* As the Perth ferry services are mainly used for suburban passenger traffic, they are referred to in this section rather than under Shipping. Of the thirteen boats in service, four are under the control of the Western Australian Government, the other nine belonging to a private company. The number of passengers carried during the year 1919–20 was 1,109,071, the revenue and expenditure for the same period being £14,518 and £13,077 respectively, and the number of persons employed 26.

7. **Tasmania.**—(i) *Tramways.* In Hobart there is a system of electric tramways, the first line of which was opened for traffic in 1893, amounting in all to a length of 13 and 16.50 route and track miles respectively. This was originally owned by a private company, but is now the property of the Hobart Municipal Council. Under the authority of the Launceston Tramway Act of 1906 the Launceston City Council entered into an agreement with a private company for the construction of a system of electric tramways in the city and suburbs of Launceston. The agreement provided that the company was to run the tramways for a period of 25 years, when the council could purchase the lines and stock at cost price; the electric power required was to be supplied by the Council. This agreement, however, lapsed, and the Council has constructed the tramways, and is running them as a municipal undertaking. The system, which was opened on the 16th August, 1911, has a route and track mileage of 10.13 and 13.05 miles respectively. The gauge of track in both these systems is 3 ft. 6 in.

The following table gives particulars of the working of the two systems for the years 1916 to 1920:—

TASMANIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS. 1916 TO 1920.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1916	21.95	373,812	1,576,839	1,058,979	7,963,040	73,424	46,758	60	250
1917	21.95	383,219	1,687,407	1,115,090	8,349,789	79,693	49,930	60	259
1918	22.00	389,650	1,913,720	1,192,955	9,785,155	81,918	56,103	60	253
1919	23.25	400,375	2,396,717	1,215,663	10,070,263	97,459	63,561	60	288
1920	*23.18*	*413,060*	*2,192,420*	*1,257,911*	*11,961,256*	*112,023*	*63,365*	*63*	*362*

There is also a tramway from Smithton to Marrawah, 27.13 miles in length, operated by the Government. Of this distance 7.60 miles are worked as a horse tram, the rest being for steam traction. In the year ended 30th June, 1920, 1,526 passengers and 22,520 tons of goods were conveyed, the number of employees being 12.

A private steam tram at Zeehan, 1.50 miles in length, is also in operation. In 1920, 7,935 tons of goods were conveyed, the number of persons employed being 4. There is also a private steam tram running from Tullah to Farrell's Siding, a distance of 7 miles. In 1918, 1,476 passengers and 3,040 tons of goods were conveyed, the number of persons employed being 4.

In addition, a private steam tramway 2 ft. 0 in. gauge, 6 miles in length joins a Government line, about 6 miles from Zeehan, running in the direction of Pieman Crossing.

(ii) *Ferries.* The Hobart ferry service, being of a suburban character, is referred to here rather than under Shipping. There is one company controlling a fleet of five boats, and also a ferry operated by the Public Works Department with two boats. In the year 1919–20 the number of passengers carried was 859,059, the revenue £14,615, the working expenses £13,465, and the number of persons employed 36.

8. **Electric Traction in Commonwealth, 1919-20.**—The subjoined table gives particulars of electric tramways for each State and the Commonwealth. The returns for the Hobart tramways in Tasmania, for the Ballarat and Bendigo tramways in Victoria, for the Kalgoorlie tramways in Western Australia, and for the Brisbane tramways, are for the calendar year 1920; and for other tramways the returns are, generally, for the financial year 1919–20.

ELECTRIC TRAMWAYS IN THE COMMONWEALTH, 1919–20.

State.	Mileage open for Traffic (Route).	Total Cost of Construction and Equipment.	Current used for Traction purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Percentage of Working Expenses on Gross Revenue.	Cars, Motors and Trailers.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	%	No.	No.
N.S.W. ..	155.35	7,842,549	92,074.950	25,304,701	304,980,683	2,676,748	2,246,674	83.932	1,394	8,440
Victoria..	105.26	2,442,746	15,758.101	7,302,713	74,359,626	553,507	418,462	75.602	294	1,554
Q'land ..	42.60	a1,435,414	11,000.875	4,934,043	69,236,699	527,264	387,456	73.484	178	1,130
S. Aust. ..	66.03	1,793,298	11,261,046	5,407,654	50,815,848	505,303	339,166	67.121	190	1,270
W. Aust.	50.66	1,175,597	7,724,522	3,612,417	27,322,820	278,117	221,045	79.479	136	629
Tasmania	23.13	413,060	2,192,420	1,257,911	11,961,256	112,023	83,385	74.435	63	362
C'wealth	443.03	15,102,664	140,011,914	47,909,439	538,683,129	4,652,962	3,696,188	79.437	2,255	13,385

(a) For year 1917.

The percentage of working expenses on gross revenue for all electric tramways in the Commonwealth was 79.44, the range for the States being 67.12 in the case of South Australia and 83.93 in the case of New South Wales.

In "Transportation Bulletin No. 12," Table No. 20, will be found an analysis of the figures in the foregoing table in respect of revenue, working expenses, etc., for the year 1919–20.

In the following table particulars are shewn as to the operations of electric tramways in the Commonwealth for the period 1911 to 1920:—

ELECTRIC TRAMWAYS IN THE COMMONWEALTH, 1911 TO 1920.

Year.	Mileage open for Traffic (Route).	Total Cost of Construction and Equipment.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.
	Miles.	£	Kilowatt-hours.	No.	No.
1910–11(a)	297.47	8,747,597	(c)80,804,252	(c)33,625,344	(c)312,857,166
1911–12	322.24	9,669,608	93,897,694	37,256,208	363,959,404
1912–13	345.07	11,147,493	106,967,982	41,258,696	405,480,511
1913–14	365.39	12,385,142	(b)118,894,845	44,147,626	435,055,028
1914–15	386.30	13,018,010	(b)116,567,559	42,811,891	416,798,309
1915–16	404.76	13,753,988	(b)116,569,324	43,262,753	432,827,050
1916–17(b)	421.68	14,197,194	119,352,451	43,820,585	451,586,745
1917–18	426.40	14,441,189	114,798,667	41,454,040	431,389,686
1918–19	430.87	14,561,578	127,094,621	44,075,173	440,782,349
1919–20	443.03	15,102,664	140,011,914	47,909,439	538,683,129

Year.	Gross Revenue.	Working Expenses.	Percentage of Working Expenses on Gross Revenue.	Cars, Motors and Trailers.	Persons Employed.
	£	£	%	No.	No.
1910–11(a)	(c)2,030,583	(c)1,512,473	(c)74.49	1,506	9,329
1911–12	2,345,428	1,775,927	75.72	1,628	11,063
1912–13	2,635,526	2,092,810	79.41	1,864	12,208
1913–14	2,915,272	2,239,584	76.82	2,071	12,548
1914–15	2,990,481	2,235,806	74.76	2,135	12,193
1915–16	3,076,962	2,256,130	73.32	2,162	13,181
1916–17(b)	3,214,777	2,479,212	77.12	2,177	13,475
1917–18	3,405,123	2,516,117	73.89	2,203	12,588
1918–19	3,707,307	2,832,268	76.40	2,216	13,171
1919–20	4,652,962	3,696,188	79.44	2,255	13,385

(a) Exclusive of Leonora tramway (W.A.), with exception of mileage. (b) Exclusive of Leonora tramway. (c) Exclusive of Launceston tramway.

During the ten years included in the last table the percentage of working expenses on the gross revenue of all electric tramways in the Commonwealth had a maximum of 79.44 in 1919–20 and a minimum of 73.32 in 1915–16, the average over the whole period being 76.31.

SECTION XVIII.

POSTS, TELEGRAPHS AND TELEPHONES.

§ 1. Posts.

1. **The Commonwealth Postal Department.**—Under the provisions of section 51 of the Commonwealth Constitution Act the Commonwealth Parliament was empowered to make laws with respect to the control of the postal, telegraphic, and telephonic services in Australia, and by proclamation, made under section 69 of the same Act, the six separate State Post and Telegraph Departments were amalgamated and taken over by the Federal Executive on the 1st March, 1901. On the 1st December following, the *Commonwealth Post and Telegraph Act* 1901 came into operation, and the provisions of the various State Acts referring to the postal and telegraphic services thereby ceased to apply; it was, however, specially provided by the Act of 1901 that, until such provisions should be revoked by the Governor-General, all regulations in force, and all rates and charges levied under any State Act, should continue in force and be applied in the same manner as if such State Act were not affected by the Commonwealth Act. The administration of the Act of 1901 was placed in the hands of a Postmaster-General, a responsible Minister with Cabinet rank, and of a Secretary having chief control of the Department throughout the Commonwealth under the Postmaster-General, whilst a principal officer in each State was provided for under the style of Deputy Postmaster-General. The rates and charges levied in each State for the transmission of letters, telegrams, and postal articles at the date of Federation remained in force until the *Post and Telegraph Rates Act* came into operation on the 1st November, 1902. This Act secured uniformity throughout the Commonwealth in the rates charged for the conveyance of newspapers by post, and for the transmission of telegrams, but did not alter the charges made in the individual States for the transmission of letters, cards, parcels, and packets. Uniform postage rates now exist in all the States under the Postal Rates Act of 1910, which came into operation by proclamation on the 1st May, 1911. (See paragraph 6 hereof.)

For a brief description of the postal services in the earlier period of Australian history, see Year Book No. 5, page 754.

2. **Development of Postal Services.**—In 1841 the number of post offices open in Australia was 102, situated mainly in New South Wales and Tasmania. Ten years later 101 post offices were open in New South Wales, 44 in Victoria, 72 in South Australia, and 51 in Tasmania. From the year 1851 onwards a remarkable increase in the number of post offices in Australia took place, until, in 1891, the number open totalled 4,463, of which 1,384 were situated in New South Wales, 1,729 in Victoria, 307 in Queensland, 629 in South Australia, 86 in Western Australia, and 328 in Tasmania. The number continued to increase until the end of the financial year 1916, when there were 6,082 post offices open in the Commonwealth, but the three subsequent years 1917–20 shew a net decrease of 215 in the number of post offices operating. At the 30th June, 1920, the number open in each State was as follows:—New South Wales, 2,034; Victoria, 1,707; Queensland, 645; South Australia, 674; Western Australia, 402; Tasmania, 405; a total for the Commonwealth of 5,867. In addition there were 2,425 receiving offices.

3. ***State, Interstate, and Oversea Postages for whole Commonwealth.***—In the following table the matter dealt with from 1914 to 1919–20 is divided into (i) matter posted in the Commonwealth for delivery within the Commonwealth, (ii) matter received from places outside the Commonwealth, (iii) matter despatched to places outside the Commonwealth, and (iv) total postal matter dealt with by the Commonwealth Postal Department. Although mail matter posted in the Commonwealth for delivery therein is necessarily handled at least twice, only the numbers despatched are included in the table following, which consequently gives the number of distinct articles handled. The large increase in oversea mail matter despatched and received in 1916–17 and 1917–18 is mainly attributable to postages in connexion with the Australian troops abroad. Evidence of this is furnished by the decreases recorded in 1918–19, when the majority of the troops had returned to Australia.

STATE, INTERSTATE, AND OVERSEA POSTAGES FOR THE COMMONWEALTH, 1914 TO 1919–20.

Year.	Letters and Post-cards.		Newspapers.		Packets.		Parcels.		Registered Articles.	
	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted).	Per 1,000 of Population.
POSTED WITHIN THE COMMONWEALTH FOR DELIVERY THEREIN.										
1914 ..	467,114	94,957	122,534	24,909	59,989	12,195	4,163	846	3,855	784
1915–16	461,167	93,505	128,928	26,141	51,498	10,442	4,366	885	4,165	844
1916–17	478,287	98,104	124,939	25,627	45,926	9,420	4,337	890	4,399	902
1917–18	483,048	97,876	116,890	23,686	42,455	8,602	4,421	896	4,677	948
1918–19	485,452	96,302	122,116	24,275	39,039	7,760	4,863	967	4,741	942
1919–20	526,261	100,297	119,448	22,765	38,140	7,269	5,434	1,036	5,313	1,013
OVERSEA RECEIVED.										
1914 ..	30,952	6,292	11,068	2,250	2,316	471	191	39	390	79
1915–16	32,292	6,547	8,603	1,744	2,115	429	220	45	470	95
1916–17	59,301	12,163	10,209	2,094	3,007	617	245	50	468	96
1917–18	48,961	9,920	7,152	1,449	2,099	425	278	56	537	109
1918–19	38,708	7,695	7,194	1,430	2,582	513	428	85	510	101
1919–20	36,493	6,955	7,799	1,486	2,119	404	339	65	425	81
OVERSEA DESPATCHED.										
1914 ..	26,724	5,433	7,517	1,528	2,227	453	86	17	301	61
1915–16	33,668	6,826	10,011	2,030	2,955	599	466	94	334	68
1916–17	47,464	9,736	12,095	2,481	3,226	662	1,173	241	365	75
1917–18	44,942	9,106	10,896	2,208	2,826	573	1,179	239	357	72
1918–19	29,550	5,874	7,360	1,463	1,907	379	770	153	281	56
1919–20	20,705	3,946	3,838	731	1,495	285	163	31	270	51
TOTAL POSTAL MATTER DEALT WITH BY THE COMMONWEALTH POSTAL DEPARTMENT.										
1914 ..	524,790	106,682	141,119	28,687	64,532	13,119	4,440	902	4,546	924
1915–16	527,127	106,878	147,542	29,915	56,568	11,470	5,052	1,024	4,969	1,007
1916–17	585,052	120,003	147,243	30,202	52,159	10,699	5,755	1,181	5,232	1,073
1917–18	576,951	116,902	134,947	27,343	47,380	9,600	5,878	1,191	5,571	1,129
1918–19	553,710	110,071	136,670	27,168	43,528	8,652	6,061	1,205	5,532	1,099
1919–20	583,459	111,199	131,085	24,982	41,754	7,958	5,936	1,182	6,008	1,145

4. State, Interstate, and Oversea Postages for each State.—The following table shews separately for each State the postal matter dealt with in 1919–20 under the classification adopted in the preceding paragraph with the exception of registered articles, which are dealt with separately in paragraph 7. The returns given for South Australia in this and all succeeding tables include those for the Northern Territory. Similarly, the returns for the Federal Territory are included in those for New South Wales.

STATE, INTERSTATE, AND OVERSEA POSTAGES FOR EACH STATE, 1919–20.

State.	Letters and Post-cards.		Newspapers.		Packets.		Parcels.	
	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted).	Per 1,000 of Population.
	POSTED FOR DELIVERY WITHIN COMMONWEALTH.							
New South Wales	211,258	105,389	52,822	26,351	17,252	8,606	2,492	1,243
Victoria ..	153,563	102,653	26,543	17,744	8,220	5,495	1,103	737
Queensland ..	64,689	89,200	19,527	26,926	5,781	7,972	1,103	1,522
South Australia	50,182	106,115	8,681	18,356	4,417	9,341	359	758
Western Australia	26,700	80,503	5,869	17,697	1,472	4,437	280	843
Tasmania ..	19,869	91,668	6,006	27,710	998	4,604	97	450
Commonwealth	526,261	100,297	119,448	22,765	38,140	7,269	5,434	1,036
	OVERSEA RECEIVED.							
New South Wales	13,312	6,647	3,087	1,541	753	376	137	69
Victoria ..	15,323	10,243	1,447	967	414	277	93	62
Queensland ..	3,554	4,901	1,635	2,255	397	547	51	70
South Australia	1,835	3,879	533	1,128	108	229	26	55
Western Australia	1,617	4,877	780	2,350	318	958	25	75
Tasmania ..	852	3,929	317	1,463	129	595	7	31
Commonwealth	36,493	6,955	7,799	1,486	2,119	404	339	65
	OVERSEA DESPATCHED.							
New South Wales	9,730	4,854	1,806	901	940	469	87	43
Victoria ..	5,911	3,952	1,335	892	364	243	48	32
Queensland ..	1,648	2,272	309	426	98	134	10	14
South Australia	1,758	3,718	186	393	64	136	8	18
Western Australia	1,140	3,437	144	434	17	50	8	25
Tasmania ..	518	2,390	58	269	12	57	2	10
Commonwealth	20,705	3,946	3,838	731	1,495	285	163	31

5. Postal Facilities.—The subjoined statement shews the number of post and receiving offices, the area in square miles and the number of inhabitants to each post office (including receiving offices) in each State and in the Commonwealth at the end of the year 1919–20. In order to judge clearly the relative postal facilities provided in each State, the area of country to each office, as well as the number of inhabitants per office, should be taken into account.

SQUARE MILES OF TERRITORY AND NUMBER OF INHABITANTS TO EACH POST AND RECEIVING OFFICE ON 30th JUNE, 1920.

State.	N.S.W. (a)	Vic.	Q'land.	S.A. (b)	W.A.	Tas.	C'wlth.
Number of post and receiving offices	2,593	2,536	1,272	792	611	488	8,292
Number of square miles of territory to each office in State	120	35	527	1,141	1,597	54	359
Number of inhabitants to each office	783	593	579	602	547	444	639
Number of inhabitants per 100 square miles	654	1,712	110	53	34	826	178

(a) Including Federal Territory. (b) Including Northern Territory.

6. **Rates of Postage.**—Prior to the operation of the Postal Rates Act of 1910, the charges made for the postage of newspapers and parcels, and of interstate and foreign letters, were the same in all the States of the Commonwealth. The rates for the transmission of letters within the borders of a State, however, were not uniform, the Post and Telegraph Act 1901 having specially provided that the rates and charges levied in any State should continue in force. The last-mentioned provision, however, was repealed by the Postal Rates Act of 1910, which came into force by proclamation on 1st May, 1911, and uniform rates are now applicable throughout the Commonwealth. An amendment of the Act in 1918 imposed as from the 28th October of that year ½d. war postage in addition to the ordinary rate. A further amendment of the Act in 1920 repealed the "War Postage Section," and provided for increased rates of postage to operate as from 1st October, 1920.

The amending bill of 1918 provided for the transfer to the Treasury of all revenue derived from War Postage, which was imposed in addition to ordinary postage. From 28th October, 1918, the date the "War Postage Section" came into operation to 30th September, 1920, the date of the repeal of the section, the Treasury received from this source £1,211,132.

POSTAL RATES ON CERTAIN ARTICLES POSTED IN THE COMMONWEALTH FOR DELIVERY THEREIN ON AND AFTER 1st OCTOBER, 1920.

Postal Articles.	Rates of Postage.
LETTERS	2d. per ½ ounce
LETTER-CARDS	Single, 2d. each Reply, 2d. each half
POST-CARDS	Single, 1½d. each Reply, 1½d. each half
PRINTED PAPERS.—As prescribed	1d. per 2 ounces or part of 2 ounces
BOOKS.—Printed outside Australia	1d. per 4 ounces or part of 4 ounces
BOOKS.—Printed in Australia	1d. per 8 ounces or part of 8 ounces
CATALOGUES.—Set up and printed in Australia, for each catalogue	1½d. per 4 ounces
MAGAZINES.—Printed in Australia, for each magazine	1d. per 8 ounces or part of 8 ounces
MAGAZINES.—Printed outside Australia, for each magazine	1d. per 4 ounces or part of 4 ounces
HANSARD.—Reports of Parliamentary Debates..	1d. per 12 ounces or part of 12 ounces
COMMERCIAL PAPERS, PATTERNS, SAMPLES, AND MERCHANDISE.—As prescribed	1½d. per 2 ounces or part of 2 ounces
NEWSPAPERS (in bulk), posted by registered newspaper proprietors, or by newsvendors, or returned by an agent or newsvendor to the publishing office	1½d. per 20 ounces on the aggregate weight of newspapers
NEWSPAPERS.—Printed outside Australia ..	1d. per 4 ounces or part of 4 ounces
ALL OTHER NEWSPAPERS	For each newspaper, 1d. per 10 ounces or part of 10 ounces

Whilst the bookkeeping sections of the Constitution Act were in force, each State had necessarily to use its own postage stamps, and stamps sold in one State were only allowed to be used on letters posted in that State. The necessity for this arrangement disappeared with the change in the keeping of the Commonwealth accounts, and since the 14th October, 1910, it has been permissible to affix stamps of any State to letters, irrespective of the State in which such letters are posted. Stamps of a uniform design are now used throughout the Commonwealth.

(i) *Letters.* Under the Postal Rates Act of 1910, the charge (1d. for every ½-oz.) for letters posted for delivery within the Commonwealth was made uniform throughout all States. Previous to 1st May, 1911, various local and interstate rates were in operation within the States. The postage to the United Kingdom was reduced in January, 1891, from sixpence per half-ounce via the Red Sea, and fourpence via the Cape of Good Hope, to the uniform rate of twopence halfpenny. In 1891 the States were represented at the Congress of the Universal Postal Union held in Vienna, and on the 4th July a convention was signed on their behalf, by which they joined the Union from the 1st October of that year. On that date the rate of postage to all British possessions and to foreign countries included in the Union was reduced to twopence halfpenny. The rate on postal articles to places within the Commonwealth and to British Possessions oversea was reduced from 1st May, 1911, and from that date until 1st October, 1920, letters to British destinations were carried at the rate of one penny per half ounce The present charge throughout the Commonwealth for postage of interstate letters and of letters to the United Kingdom and to British possessions, including the islands in the Pacific, which, prior to the War were held by Germany, but are now under British control, is uniformly twopence per half-ounce. The rate on letters to foreign countries (with the exception of New Hebrides, Banks and Torres Islands, where the rate is twopence per half-ounce) is threepence each half-ounce.

(ii) *Newspapers.* The different rates charged for the carriage of newspapers in the various States prior to Federation continued after the control of the Postal Departments had been taken over by the Commonwealth, until the 1st November, 1902, when a uniform rate was imposed by the Post and Telegraph Rates Act 1902. At present the rate on all newspapers posted for delivery in the Commonwealth or for transmission to Papua (without condition as to the number contained in each addressed wrapper posted) by registered newspaper proprietors, or by newsvendors, or returned by newsvendor or agent to the publishing office, is three halfpence per twenty ounces on the aggregate weight. The rate to New Zealand, the islands annexed thereto, and Fiji is three halfpence per sixteen ounces on the aggregate weight, which must not exceed 20 lbs. On all other registered newspapers posted within the Commonwealth for delivery therein or for transmission to New Zealand and the islands annexed thereto, Fiji, and Papua, the charge is one penny per ten ounces for each newspaper. At the end of the year 1919 there were in all 1,465 publications registered in the Commonwealth under section 29 of the Post and Telegraph Act 1901 for transmission by post as newspapers. The rates on registered newspapers for transmission to the United Kingdom are, by the ordinary route, for each newspaper not exceeding two ounces one penny, exceeding two ounces but not exceeding eight ounces three half-pence, exceeding eight ounces but not exceeding ten ounces threepence, every additional two ounces one halfpenny. By the all-sea route the rate for each newspaper exceeding eight ounces is three half-pence per sixteen ounces. To other parts of the world the rate is one penny up to two ounces and one halfpenny for every additional two ounces. The limit of weight allowed is 5 lbs. Newspapers which are not registered are charged at the same rates as other printed papers.

(iii) *Parcels.* Parcels may not exceed 11 lbs. in weight, 3 ft. 6 in. in length, or 6 feet in length and girth combined. The rate for the inland postage of parcels is sixpence up to 1 lb., and then threepence for every additional pound. For interstate, New Zealand, Fiji, and Papua the rate is eightpence up to 1 lb., and then sixpence per lb., and for transmission to the United Kingdom the rate is one shilling up to 1 lb., and sixpence for every additional pound. Various rates are charged for the conveyance of parcels to other parts of the world.

(iv) *Packets.* The following articles are classed as packets and are accepted for oversea destinations at the rates given. A table of charges for delivery within the Commonwealth is to be found on page 633 :—Commercial Papers: For New Zealand

(including islands annexed thereto) and Fiji, three half-pence per two ounces; for all other places, two ounces threepence, each additional two ounces up to six ounces halfpenny, each two ounces thereafter three half-pence, maximum 5 lbs. Printed Papers: All places penny per two ounces, maximum 5 lbs. Patterns and Samples: For New Zealand (including islands annexed thereto) and Fiji, three half-pence per two ounces (up to 1 lb); for United Kingdom, three half-pence per two ounces (up to 5 lbs.); for all other places, three half-pence per two ounces (up to twelve ounces). Merchandise: For New Zealand (including islands annexed thereto) and Fiji, three half-pence per two ounces (up to 1 lb.); to all other places parcels rates are charged. Books: For New Zealand (including islands annexed thereto), Fiji, New Hebrides, and Solomon Islands, penny per four ounces; for all other places, penny per two ounces. Catalogues: Rates applicable Commonwealth only. Magazines: For New Zealand (including islands annexed thereto), Fiji, New Hebrides, and Solomon Islands, penny per four ounces; for all other places, penny per two ounces. Packets for transmission within the Commonwealth must not as a rule exceed 2 feet in length, 1 foot in breadth or depth; or, if in a roll, 2 ft. 6 in. in length.

7. **Registered Letters, Packets, etc.**—Under section 38 of the Post and Telegraph Act 1901, provision is made for the registration of any letter, packet, or newspaper upon payment of a fee of threepence, and any person who sends a registered article by post may obtain an acknowledgment of its due receipt by the person to whom it is addressed by paying an additional fee of twopence halfpenny in advance at the time of registration.

Number of Registered Articles. The subjoined table shews the number of registered articles posted in each State, classified according to the places to which they were despatched for delivery, also the number of registered articles received in each State from beyond the Commonwealth during the year 1919-20:—

REGISTERED ARTICLES POSTED IN EACH STATE AND RECEIVED FROM BEYOND COMMONWEALTH, 1919-20.

State.	Posted in each State for Delivery within that State.		Posted in each State for Delivery in other States.		Posted in each State for Delivery in Places outside the C'wealth.		Total Posted.		Received in each State from Places outside the C'wealth.	
	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted.)	Per 1,000 of Population.
New South Wales ..	1,664	830	246	123	122	61	2,032	1,014	187	93
Victoria	1,239	829	205	137	69	46	1,513	1,012	118	79
Queensland	708	976	107	147	31	42	846	1,165	52	72
South Australia ..	403	852	61	128	16	34	480	1,014	23	49
Western Australia ..	386	1,164	40	121	26	80	452	1,365	38	113
Tasmania	221	1,019	33	150	6	28	260	1,197	7	31
Commonwealth ..	4,621	881	692	132	270	51	5,583	1,064	425	81

8. **Ocean Mail Services.**—Regular steamship communication between Australia and Europe was established in 1852 by a service run by the Peninsular and Oriental Company between Singapore and Sydney, via King George's Sound, Adelaide, and Melbourne. This service was inaugurated in September, 1852, by the arrival at Melbourne of the *Chusan*, and was continued until 1854, when it was stopped in consequence of the Crimean War; in 1856 a line of steamers was again started, and the service was carried on by the Peninsular and Oriental Company, in conjunction with the Royal Mail Company, for some years.

(i) *Mail Route via San Francisco.* The service via the Red Sea did not at first give much satisfaction to the public, and was looked upon with a certain amount of disfavour in New South Wales and New Zealand. The effect was to stimulate the colonists to agitate for an improved service, and proposals were made for the establishment of a line of mail packets from Sydney to Panama via Wellington, by rail across the isthmus, and thence to Great Britain. The result was that in 1866 the line was started, and continued in operation until the end of 1868, when it was terminated through the failure of the company by which it had been carried out. The completion of the railway across the American continent in 1869, with its western terminus at San Francisco, opened up a new and agreeable route, and in that year a monthly service was inaugurated by the Union Steamship Company, in conjunction with the Pacific Steamship Company, from Sydney to San Francisco via Auckland. This service was subsidised to the extent of £37,000 per annum, of which New South Wales paid £25,750 and New Zealand £11,250, and was continued until November, 1890, when a new contract was entered into and the amount of the subsidy largely reduced, the amount of the contribution being based upon the weight of mail matter carried. Various extensions of the contract were made, but the last agreement made between the New Zealand Government and the Oceanic Steamship Company of San Francisco expired on the 10th November, 1906, and has not since been renewed. From that date mails were carried at Postal Union rates until the 12th April, 1907, when the service was discontinued. At present mails to and from Europe are carried by the Union Steamship Company, which receives a subsidy from the New Zealand Government, with a four-weekly service; and by the Oceanic Company, with a service twice in every nine weeks. Postal Union rates are charged in respect of Australian mails conveyed by the Union Company, and poundage rates in the case of the Oceanic Company.

(ii) *Route via Suez Canal.* The establishment of a mail route via America had the effect of stimulating the steamship owners who were engaged in the service via Suez, and from that time there was a marked improvement in the steamers, as well as in the punctuality and speed with which the mails were delivered. Almost since the inception of ocean steam services, the Peninsular and Oriental Company, and, at a little later date, the Orient Pacific Company, have carried mails to and from Australia. Postal matter was carried under contract with the Companies named until 31st January, 1905, the subsidy being £170,000 per annum, of which £98,000 was paid by the United Kingdom and £72,000 by the States of the Commonwealth in proportion to the population of the several States. The Imperial and Commonwealth Governments then entered into separate contracts with the P. and O. Company and Orient Company respectively. The Commonwealth Government's agreement with the Orient Company (on behalf of themselves and the Pacific Steam Navigation Company) was made on 25th April, 1905, and provided for a fortnightly mail service between England and Australia for the period from 4th April, 1905 to 31st January, 1908, the subsidy being £120,000 per annum. A further agreement was entered into between the Commonwealth and the Orient and Pacific Companies on 20th December, 1907, under which the service was extended to Brisbane on payment by the Commonwealth of £4,880 per annum additional as from 1st January, 1907. These agreements were replaced by the 1907 agreement referred to in the next sub-section hereof. Mails were also conveyed to and from Australia by the P. and O. Steamers under the contract with the British Post Office at Postal Union Rates. This arrangement continued until July, 1917, since when mails conveyed from Australia by P. and O. steamers have been paid for at poundage rates. Fremantle has, since the year 1900, been the first and last port of call for European mail steamers, in lieu of Albany, the original port of call. The Peninsular and Oriental and Orient Steam Navigation Companies' steamers, before the outbreak of war in 1914, sailed alternately every week, both from London and Australia, conveying the outward and homeward mails. The Peninsular and Oriental service was entirely suspended subsequent to July, 1917, as a result of the war, while a very limited service was carried on for a greater part of the time by the Orient line via the Cape route. The situation has improved since the termination of the War, although the regular running of the Peninsular and Oriental and Orient line steamers has not yet been resumed. At present every opportunity is being availed of to improve the service by despatching mails by all vessels suitable for the purpose.

(a) *1907 Mail Contract.* On the 1st January, 1906, tenders were invited by the Commonwealth Postmaster-General for a fortnightly mail service between Adelaide and Brindisi, to alternate with a similar service to be provided by the Imperial Government, and a contract was entered into with Sir James Laing and Company Limited, providing for a service at an annual subsidy of £125,000. This contract, however, fell through, and new tenders were accordingly called for. On the 15th November, 1907, an agreement was entered into with the Orient Steam Navigation Company Limited providing for a fortnightly service for a period of ten years, commencing in February, 1910. The mail service was to be carried out by existing vessels belonging to the company and by five new mail ships, which had been specially built, and which were each over 12,000 tons gross registered tonnage and of not less than seventeen knots speed. An additional new vessel was to be added within eighteen months, and another within six years, from February, 1910, and the first of these—the *Orama*—entered into running during November, 1911. War conditions, however, delayed the addition of the later vessel to the mail fleet. The vessels were to call at Fremantle, Adelaide, Melbourne, Sydney, and Brisbane, and, during the months of February to May inclusive, at least six of them at Hobart. The voyage from Taranto to Adelaide was to be completed within twenty-six days, fourteen hours, and from Adelaide to Taranto within twenty-seven days, two hours, but the latter period might be exceeded by thirty-six hours during the prevalence of the south-west monsoon. The amount of the subsidy was fixed at £170,000 per annum; but, if the earnings of the company were decreased, or the expenses increased by reason of any Commonwealth shipping legislation passed subsequently to the date of the agreement, to the extent of not less than £5,000 a year, the contractors had the right to terminate the agreement unless the subsidy were increased. Insulated space of not less than 2,000 tons of forty cubic feet per ton was to be provided in each of the new vessels, and the freights were not to exceed one halfpenny per lb. for butter and sixty shillings per ton for fruit. These rates obtained until the beginning of the War when the control of space passed to the Imperial Government. White labour only was to be employed, and no discrimination was to be made between unionists and non-unionists. If before or during the sixth year of the period of the contract an accelerated service were provided by any competing line of mail ships, the contractors had, if so required by the Postmaster-General, to provide a service equal to the competing service, at an increased subsidy, to be determined by agreement or arbitration. With the expiration of the period in 1916, this clause in the agreement lapsed. The Commonwealth flag had to be flown on the mail ships, which the Commonwealth had the right to purchase at a valuation at any time. Within six months of the Postmaster-General establishing a permanent wireless telegraphy station at Rottnest Island, or at any point on the coast between Fremantle and Brisbane, the company was required to fit the mail ships with wireless telegraphy installations. The new service was inaugurated on the 11th February, 1910, but was interrupted by the War and has since been carried out as far as possible with the reduced number of steamers available. This contract expired on 17th September, 1921, the Company having given the necessary 24 months' notice of intention to terminate as provided by the agreement.

(b) *1921 Mail Contract.* On 27th April, 1921, a fresh contract was entered into between the Commonwealth and the Orient Company for a four-weekly service between Toulon or other approved port in Southern Europe and Fremantle. The mail steamers are to start from an approved port in the United Kingdom and are to call also at Adelaide, Melbourne, Sydney, and Brisbane, while at least three of them are to call at Hobart during the period February to May inclusive. The service commenced on 20th September 1921, and will be performed by the four steamers remaining to the Orient Company after the war. The contract is terminable on twelve months' notice by either party to the agreement, and is based generally on the terms and conditions of the 1907 contract. The period of transit from Toulon to Fremantle is to be 632 hours, and from Fremantle to Toulon 644 hours. During the prevalence of the South-west monsoon the latter period is extended by 36 hours. The subsidy payable is £130,000. Refrigerated space similar to that provided for in the 1907 contract is to be provided in the four regular steamers employed in the service, but if necessary the contractors may, as under that contract, use one other steamer without refrigerated space. Instead of the charges for butter and fruit being fixed as in 1907 it is provided that the contractors shall not, without the approval

of the Postmaster-General, charge or receive for carriage of butter and fruit any higher rates of freight than the current ruling rates of freight charged or received (after deduction of all rebates allowed or allowable) for carriage of those articles on other lines of steamers regularly engaged in the trade between the Commonwealth ports of call and the port or ports of discharge of the mail ships. The contract is subject to the British Government arranging with the Peninsular and Oriental Company for a four-weekly service which will alternate with the Orient contract, and thus provide a regular fortnightly service between Australia and Great Britain. An arrangement of this nature has been made.

(c) *French and German Subsidised Mail Services.* Vessels belonging to the Messageries Maritimes and the Norddeutscher Lloyd, which were under contract respectively with the French and German Governments to convey mails monthly between Marseilles and New Caledonia and between Bremen and Sydney, via Genoa, also carried mails for the Commonwealth Government from Australia to Europe at Postal Union rates. The Messageries Maritimes service commenced in November, 1882; the amount of the annual subsidy granted by the French Government being £120,000. The vessels have, however, for the time being, been withdrawn from the Australian service. The first contract for the establishment and maintenance of a mail steamship line between Germany and Australia was made between the Imperial German Government and the Norddeutscher Lloyd in 1885, and the service was inaugurated in July, 1886, with the steamer *Salier*. The service afforded by German vessels was, of course, discontinued on the outbreak of hostilities in Europe in 1914.

(iii) *Route via Vancouver and Canadian-Pacific Railway.* During the year 1893 a direct monthly service was started between Sydney and Vancouver, in British Columbia, via Wellington in New Zealand, and thence to Liverpool via the Canadian-Pacific Railway, the New South Wales Government paying an annual subsidy of £10,000 for the maintenance of this service for a period of three years. In 1896 the agreement was renewed for a further period of three years, and in 1899 was again renewed for four years, subject to the same terms and conditions, except that the route was via Brisbane instead of Wellington. The contract was further extended, at an increased subsidy, from time to time until the 31st July, 1911, at a subsidy of £26,626 per annum, when it finally terminated, and Commonwealth mails for Canada are now forwarded from Sydney, via New Zealand, at poundage rates.

(iv) *Other Ocean Mail Services.* In addition to the mails via the Suez Canal, a number of other services, both regular and irregular, are maintained between the Commonwealth and various parts of the world, and also between the principal ports in the various States and a number of small ports in the less settled parts of the Commonwealth which are inaccessible by rail. The following statement gives a summary, in so far as returns are available, of all mail services maintained between the Commonwealth and other countries and between ports in the Commonwealth. The amounts of subsidies specified are the amounts payable per annum unless otherwise stated.

SUMMARY OF COMMONWEALTH MAIL SERVICES, 1921.

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
1. *To and from Europe, via Suez*—			
(a) Orient Steam Navigation Co.	Every four weeks	Brisbane, Sydney, Melbourne, Adelaide, Fremantle and London, via Suez	Subsidy, £130,000. Commences 20th September, 1921. Terminable on twelve months' notice by either party
(b) Peninsular and Oriental S.N. Co. Ltd.	Irregular intervals	Sydney, Melbourne, Adelaide, Fremantle, and London, via Suez	Poundage rates

SUMMARY OF MAIL SERVICES—*continued.*

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
2. *To and from Europe, via Vancouver**— Union Steamship Co. ..	Every four weeks	Sydney and Vancouver, B.C., via Auckland, Fiji, Honolulu	Poundage rates
3. *To and from Europe, via San Francisco*— (*a*) Union Steamship Company	,,	Sydney, Wellington, Raratonga, Tahiti, and San Francisco	Subsidised by New Zealand Govt. Mails from Aust. at Postal Union rates
(*b*) Oceanic Steamship Co. ..	Twice in nine weeks	Sydney, Pago Pago (Samoa), Honolulu, and San Francisco	Poundage rates
4. *To and from New Zealand*— (*a*) Conjointly by Union S.S. Co. and Huddart, Parker Ltd.	Weekly	Sydney and Wellington, Sydney and Auckland	,, ,,
(*b*) Other steamers	Irregularly, when *convenient*	Sydney, Wellington, Auckland, Lyttelton, *and other Ports*	,, ,,
5. *To and from Ports in New South Wales*— (i) NORTHERN PORTS— (*a*) North Coast S.N. Co.	Twice *weekly*	Sydney and Coff's Harbour, *Clarence River*, Byron Bay and Richmond River	,, ,,
(*b*) ,, ,,	Fortnightly	Sydney and South Solitary Island	,, ,,
(*c*) Langley Bros. ..	Weekly	Sydney and Coff's Harbour	,, ,,
(ii) SOUTH COAST PORTS— Illawarra and S. Coast S.N. Co.	Fortnightly	Sydney, Montague Island	,, ,,
6. *To and from Northern Ports of Queensland*— (*a*) Australasian United Steam Navigation Co. Limited	Weekly	Gladstone, Mackay, Bowen, Townsville, Lucinda, Mourilyan, Cairns, Port Douglas, and Cooktown	Subsidised by agreement dated 6th Dec., 1920, for one year. Amount of subsidy, £20,500, exclusive of Port and Light dues
(*b*) Other steamers ..	Irregularly	Various	Poundage rates
7. *To and from Ports in South Australia*— (*a*) Coast Steamship Co. Ltd.	Weekly	Port Adelaide and Kingscote	Subsidised to 31st December, 1922. Amount of subsidy, (*a*) £900; (*b*) £400; (*c*) £500; (*d*) £400
(*b*) ,, ,,	Twice a week	Port Adelaide and Edithburgh	
(*c*) ,, ,,	,,	Port Adelaide and Stansbury	
(*d*) ,, ,,	,,	Port Adelaide and Port Vincent	
(*e*) Adelaide Steamship Co. ..	Weekly	Port Adelaide and Port Lincoln	Subsidised for three years from 1st January, 1920. Amount of subsidy, £3,000
(*f*) Adelaide Steam Tug Co. ..	As required	Port Pirie and Whyalla	Subsidised without agreement. Amount of subsidy, £120

* Carries also mails to Canada and the United States.

SUMMARY OF MAIL SERVICES—*continued.*

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
8. *Western Australia*—			
(i) TO AND FROM PORTS ON N.W. COAST—			
(*a*) State Steamship Service	Monthly ..	Fremantle and Derby ..	Subsidised by agreement dated 28th February, 1913, for three years. Later extended to a date three months after expiration of war. Subsequently extended for indefinite period. Amount of subsidy, £5,500
(*b*) ,, ,, ,,	Once each sixty days	Fremantle and Darwin..	
(*c*) West Australian S.N. Co.	About fortnightly	Fremantle and Singapore, via N.W. Ports	Poundage rates
(*d*) Aust. United S. Navigation and State S.S. Co. and Melbourne S.S. Coy.	Irregularly, during the cattle season	Fremantle, Derby, and Wyndham	,, ,,
(ii) TO AND FROM PORTS ON S. COAST—			
(*a*) State Steamship Service	Fortnightly	Albany and Esperance..	Subsidised by agreement for three years, dating from 1st July, 1921. Amount of subsidy, £1,500
(*b*) ,, ,,	Quarterly	Albany and Eucla, via intermediate ports	
9. *Tasmania*—			
(*a*) Union S.S. Co. and Huddart, Parker Proprietary	Three times a week summer; twice a week winter	Melbourne and Launceston	Subsidy, £30,000 per annum from 1st May, 1921, under contract for twelve months, and thereafter terminable on twelve months' notice by either party to the agreement
(*b*) ,, ,, ,,	Twice a week	Melbourne and Burnie	
(*c*) ,, ,, ,,	Weekly ..	Sydney, Hobart, and Wellington	Poundage rates
(*d*) Union Steamship Co...	Fortnightly	Sydney, Launceston, and Devonport	,, ,,
(*e*) To and from ports in Western Districts	Weekly ..	Hobart and Strahan ..	,, ,,
(*f*) Holyman and Sons Ltd.	,, ..	Melbourne, Burnie, etc	,, ,,
(*g*) Huon Channel and Peninsular Co.	Twice a week	Hobart and Kelly's Point, via Pearson's Point	Subsidised by agreement dated 1st January, 1919, for three years. Amount of subsidy, £40 per annum
(*h*) C. A. Coghlan ..	Every two weeks	Launceston and Furneaux group of islands	Subsidised by agreement dated 1st January, 1919, for three years. Amount of subsidy, £600 per annum, of which £300 contributed by State Government, contract terminable by month's notice either side
(*i*) King Island Steamers Ltd.	Fortnightly	Launceston and King Island	Subsidised by agreement dated 1st January, 1919, for three years. Amount of subsidy, £300 per annum
10. *To and from Northern Territory*—			
(*a*) Burns, Philp and Co. ..	Monthly ..	To and from Adelaide and Sydney, via Queensland ports, extending to China and Japan	Poundage rates
(*b*) State Steamship Service of Western Australia	Once each sixty days	Fremantle and Darwin..	See Item 8 above

SUMMARY OF MAIL SERVICES—*continued.*

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
11. *To Eastern Ports*—			
(a) Burns, Philp and Co...	Monthly ..	Sydney to Singapore via Queensland Ports and Darwin	Subsidised by Commonwealth Govt. Mails at poundage rates
(b) China Navigation, Eastern and Ausn., and China Australian Line	About three times a month	Sydney to Hong Kong, Manila, etc., via Queensland Ports	Poundage rates
(c) Nippon Yusen Kaisha	Every four weeks	Sydney to Manila, China, and Japan, via Queensland Ports	Postal Union rates
(d) Royal Dutch Packet S.N. Co.	Monthly	Melbourne to Java, via Sydney and Queensland Ports	Poundage rates
(e) Various other steamers	About monthly	Sydney or Newcastle and ports in Borneo, Java, Sumatra, and Malay Peninsula	,, ,,
(f) W.A.S.N. Co. ..	About fortnightly	W.A. Ports, Java, and Singapore	,, ,,
12 *South Africa*—			
White Star, P. and O. Branch Service, and other Companies	Irregularly	Sydney to Durban and Capetown	,, ,,
13. *North America*—			
(a) Various steamers ..	Irregularly	Sydney or Newcastle to San Francisco	,, ,,
(b) ,, ,, ..	,,	Sydney to Guaymas (Mexico)	,, ,,
(c) Union S.S. Co. ..	13 voyages yearly	Sydney, Wellington, Tahiti and San Francisco	,, ,,
(d) ,, ,, ..	Every four weeks	Sydney, Auckland, Fiji, Honolulu, and Vancouver	,, ,,
(e) Oceanic S.S. Co. ..	Twice in *nine weeks*	Sydney, Pago Pago, (Samoa), and *San Francisco*	,, ,,
14. *South America*—			
(a) { Oceanic S.S. Co. / Union S.S. Co. }	Twice a month	Sydney, via San Francisco to ports in Chile, Brazil, Peru, Uruguay, and Argentina	,, ,,
(b) Various other steamers	Irregularly	*Via Newcastle to various* ports	,, ,,
15. *Pacific Islands*—			
(a) Burns, Philp and Co...	Every two months	Sydney to Lord Howe and Norfolk Islands and New Hebrides	Subsidised by Commonwealth
(b) ,, ,,	Irregularly	Sydney to Nauru and Ocean Islands, Gilbert and Ellice Groups	,, ,,
(c) ,, ,,	,,	Sydney to Marshall Islands	,, ,,
(d) ,, ,,	Every three weeks	Sydney to Papua and Rabaul	Subsidised by Commonwealth
(e) ,, ,,	,,	Sydney to Rabaul ..	,, ,,
(f) ,, ,,	,,	Sydney to Solomon Islands	,, ,,
16. *New Caledonia and New Hebrides*—			
(a) Messageries Maritimes	Monthly ..	Sydney and Noumea and to Vila (New Hebrides)	Postal Union rates
(b) Other steamers ..	About twice a month	Sydney and Noumea ..	Poundage rates
17. *Fiji, Friendly Islands, and Samoa*—			
(a) Union S.S. Co. ..	Every four weeks	Sydney and Suva ..	,, ,,
(b) ,, ,, ..	,,	Sydney, Suva, Tonga, and Samoa	,, ,,
(c) A.U.S.N. Co. ..	,,	Sydney and Suva ..	,, ,,

9. Amount of Mail Subsidies Paid.—The following table shews the amounts of subsidies paid by the Commonwealth Postal Department for ocean and coastal mail services during the year ended 30th June, 1920 :—

MAIL SUBSIDIES.—OCEAN AND COASTAL SERVICES, 1919–20.

Service.	Orient S. N. Co.	Queensland Ports.	South Australian Ports.	Western Australian Ports.	Tasmanian Ports.
	£	£	£	£	£
Annual subsidy	111,524	20,000	5,374	7,000	(a)13,915

(a) Including £300 paid by Tasmanian Government, and £15 paid by Trade and Customs Department.

During the year 1919–20 the amount paid by the Commonwealth for conveyance of mails at poundage rates by non-contract vessels was £50,915 ; by road services, £486,539 ; and by railway services, £247,215. The total expenditure in 1919–20 on the carriage of mails, as disclosed by the Profit and Loss Account, amounted to £987,610.

10. **Average and Fastest Time of Mails to and from London.**—Great progress has been made in regard to the means of postal communication with the United Kingdom and the continents of Europe and America. In 1857 there was an unsatisfactory ocean mail service, which nominally brought monthly mails, with news nearly sixty days old ; before the outbreak of the war there were three lines of modern ocean steamships, which brought the mails from the United Kingdom in about twenty-nine days to Adelaide, in addition to services by way of New Zealand, via San Francisco and Vancouver. Since the completion of the railway connecting Kalgoorlie, Western Australia, and Port Augusta, South Australia in 1917, letters for Australia and New Zealand arriving by overseas vessels from the United Kingdom have been landed at Fremantle for despatch overland by rail to the Eastern States. In the new contracts entered into in 1921 Fremantle has been made the mail port in Australia, and henceforth both first and second class mail matter will be brought to the Eastern States by train instead of first class matter only as formerly. By landing at Fremantle instead of as formerly at Adelaide, a saving of approximately sixty-seven hours is effected. In consequence of the war in Europe, steamers belonging to the Orient S. N. Co. were diverted from the Suez Canal to the Cape route, but the Suez Canal route has since been reverted to. The steamers of the Peninsular and Oriental Co. have also resumed via the last named route. A service equal to that of pre-war days is not yet available. A regular fortnightly service is assured, however, under the terms of contracts entered into between the Commonwealth Government and the Orient Steam Navigation Company and between the Imperial Government and the Peninsular and Oriental Company. Particulars of these contracts, which date from September, 1921, will be found on page 637 ante.

The subjoined table shews the average and the fastest times occupied in the conveyance of mails from London to Adelaide and vice versa during the year 1919–20.

AVERAGE AND FASTEST TIME OCCUPIED IN CONVEYANCE OF MAILS VIA SUEZ CANAL BETWEEN LONDON AND ADELAIDE, AND VICE VERSA, DURING 1919–20.

Service.	London to Adelaide.(a)				Adelaide to London.			
	Average Time.		Fastest Time.		Average Time.		Fastest Time.	
	Days.	Hours.	Days.	Hours.	Days.	Hours.	Days.	Hours.
Orient S. N. Co., via Suez ..	35	5	31	20	35	10	32	—
Peninsular and Oriental S.N. Co., via Suez	34	19	32	13	45	2	33	—

(a) Mails for eastern States now landed at Fremantle.

At present a mail leaving Perth by train for the eastern States, say, at 10 p.m. on Monday, arrives at Adelaide at 7.50 p.m. on Thursday, at Melbourne at 1.3 p.m. on

Friday, at Sydney at 10.45 a.m. on Saturday, and at Brisbane at 6.40 p.m. on Sunday. The time over all between Perth and Brisbane is 138 hours 40 minutes, of which the stops at changing stations take 14 hours 56 minutes. The journey from Melbourne to Hobart occupies about 26 hours via Launceston, and about 32 hours direct.

The average and fastest times occupied in the conveyance of mails between London and Sydney via America during 1919-20 were :—

Service.	Average Time. Days.	Average Time. Hours.	Fastest Time. Days.	Fastest Time. Hours.
London to Sydney	44	2	36	...
Sydney to London (via Vancouver)	43	10	38	...
Sydney to London (via San Francisco)	39	21	37	..

11. **Money Orders and Postal Notes.**—The issue of money orders and postal notes in the Commonwealth is regulated by sections 74 to 79 of the Post and Telegraph Act 1901. A money order may be issued for payment of sums up to £20 within the Commonwealth and not exceeding £40 (in some cases £30, £20, or £10) in places abroad. A postal note, which is payable only within the Commonwealth and in Papua, cannot be issued for a larger sum than twenty shillings. Money orders are sent direct from the Commonwealth to the United Kingdom, and to most of the British colonies and possessions, to the British Solomon Islands Protectorate and the Gilbert and Ellice Islands Protectorate, to Italy, to Norway, and to the United States of America. Money orders, payable in Japan and China, are sent via Hong Kong; orders payable in other countries, with a few exceptions, are sent through the General Post Office in London, where new orders are issued and forwarded to the addresses of the payees, less twopence for each £1 or fraction of £1, with a minimum charge of fourpence. To secure the full amount of the original order being forwarded to the payee, this extra commission must be paid by the sender.

(i) *Rates of Commission on Money Orders.* The rates of commission chargeable for the issue of money orders are as follows :—

RATES OF COMMISSION, MONEY ORDERS.

If Payable in—	For sums— Not exceeding £2.		Exceeding £2, but not exceeding £5.		Exceeding £5, but not exceeding £7.		Exceeding £7, but not exceeding £10.		Exceeding £10, but not exceeding £12.		Exceeding £12, but not exceeding £15.		Exceeding £15, but not exceeding £17.		Exceeding £17, but not exceeding £20.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
Commonwealth of Australia	0	6	0	6	1	0	1	0	1	6	1	6	2	0	2	0
New Zealand and Fiji ..	0	6	1	0	1	6	2	0	2	6	3	0	3	6	4	0
Papua	0	9	0	9	1	6	1	6	2	3	2	3	3	0	3	0
United Kingdom, Union of South Africa, Hong Kong, Dutch East Indies, Egypt, Straits Settlements	Ninepence for any amount up to £2, and 4d. for each additional pound or fraction of a pound.															
Canada	Sixpence for each pound or fraction of a pound.															
Philippine Islands ..	(a) For amounts not exceeding £1, 9d. for each 2s. or fraction, with maximum of 7s. 3d. (b) For amounts exceeding £1 for each £1, 7s. 3d., and for any odd amounts less than £1, 9d. for each 2s., with a maximum of 7s. 3d.															

Remittances may also be made by telegraph to and from money order offices in the Commonwealth which are also telegraph or telephone offices, and to New Zealand. The charge for a telegraph money order is the cost of the telegram of advice in addition to the ordinary commission. Where payment is to be made within the Commonwealth the remitter must also send a telegram advising the transmission of the money, which telegram must be produced by the payee when applying for payment. In the case of New Zealand a second telegram is not required, but an additional charge of sixpence is made by the Department to cover the cost of notifying the payee.

(ii) *Rates of Poundage on Postal Notes.* The values of the notes issued have been so arranged that any sum of shillings and sixpences up to £1 can be remitted by not more than two of these notes. The poundage or commission charged on notes of different denominations is as follows :—

POUNDAGE RATES, POSTAL NOTES.

Denomination of Note ..	6d. to 1s. 6d.	2s. to 4s. 6d.	5s.	7s. 6d.	10s. to 20s.
Poundage charged ..	½d.	1d.	1½d.	2d.	3d.

(iii) *Value of Orders Issued and Paid and of Notes Sold.* The following table shews the total value of money orders issued and paid, and of postal notes sold in each State and in the Commonwealth during the year 1919–20, together with the total amount of commission on money orders and poundage on postal notes received by the Postal Department. The results throughout shew an improvement as compared with the corresponding figures for 1918–19.

VALUE OF MONEY ORDERS ISSUED AND PAID AND OF POSTAL NOTES SOLD, AND TOTAL AMOUNTS OF COMMISSION AND POUNDAGE RECEIVED IN EACH STATE DURING 1919–20.

State.	Value of Money Orders Issued.	Value of Money Orders Paid.	Net Money Order Commission Received.	Value of Postal Notes Sold.	Poundage Received on Postal Notes.
	£	£	£	£	£
New South Wales ..	5,235,409	5,367,711	34,997	1,468,374	28,675
Victoria	2,536,026	2,755,023	16,301	923,269	18,922
Queensland ..	2,037,899	1,750,217	14,011	437,516	8,452
South Australia ..	793,442	684,714	5,734	225,475	4,604
Western Australia ..	1,276,504	1,100,912	8,066	224,982	4,263
Tasmania	502,708	435,002	3,267	109,111	2,215
Commonwealth ..	12,381,988	12,093,579	82,376	3,388,727	67,131

12. Number and Value of Money Orders and Postal Notes Issued and Paid.—The following table shews the total number and value of money orders and postal notes issued and paid in the Commonwealth from 1914 to 1919–20. The payment of military allotments by money order was chiefly responsible for the increase in business recorded in 1915–16. Payment of military allotments by this method was discontinued in 1916–17.

NUMBER AND VALUE OF MONEY ORDERS AND POSTAL NOTES ISSUED AND PAID, 1914 TO 1919-20.

Year.	Money Orders.				Postal Notes.			
	Issued.		Paid.		Issued.		Paid.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
	No. (,000).	£ (,000).	No. (,000).	£ (,000).	No. (,000).	£ (,000).	No. (,000).	£ (,000).
1914 ..	2,062	8,858	1,823	8,326	9,881	3,680	8,893	3,671
1915-16 ..	(a)3,007	12,336	2,904	11,815	9,536	3,292	9,517	3,316
1916-17 ..	2,293	10,285	2,105	9,757	9,663	3,273	9,549	3,265
1917-18 ..	2,196	10,901	2,138	10,510	9,842	3,252	9,814	3,221
1918-19 ..	2,300	11,697	2,214	11,370	9,830	3,277	9,775	3,244
1919-20 ..	2,352	12,382	2,258	12,094	10,163	3,389	10,127	3,409

(a) Increases due to payment by money order of military allotments.

13. ***Classification of Money Orders Issued and Paid.***—The following table shews the number and value of money orders issued in each State during the year 1919-20, classified according to the country where payable :—

MONEY ORDERS ISSUED IN EACH STATE, CLASSIFIED ACCORDING TO COUNTRY WHERE PAYABLE, 1919-20.

State in which Issued.	Where Payable.				Total.
	In the Commonwealth.	In New Zealand.	In the United K'dom.	In Other Countries.	
	NUMBER.				
New South Wales ..	939,652	9,080	60,688	15,053	1,024,473
Victoria	381,295	5,632	31,925	10,871	429,723
Queensland.. ..	364,208	1,773	23,088	8,223	397,292
South Australia ..	145,892	891	11,541	3,417	161,741
Western Australia ..	212,487	813	15,303	3,350	231,953
Tasmania	99,950	1,573	3,992	1,314	106,829
Commonwealth ..	2,143,484	19,762	146,537	42,228	2,352,011
	VALUE.				
	£	£	£	£	£
New South Wales ..	4,870,970	61,646	189,811	112,962	5,235,409
Victoria	2,343,880	24,161	88,591	79,394	2,536,026
Queensland.. ..	1,884,991	7,788	76,265	68,855	2,037,899
South Australia ..	732,213	4,387	33,829	23,013	793,442
Western Australia ..	1,204,454	3,801	44,712	23,537	1,276,504
Tasmania	477,662	7,489	11,615	5,942	502,708
Commonwealth ..	11,514,170	109,272	444,823	313,723	12,381,988

The following table shews the number and value of money orders paid in each State during the year 1919–20, classified according to the country where issued :—

MONEY ORDERS PAID IN EACH STATE, CLASSIFIED ACCORDING TO COUNTRY OF ISSUE, 1919–20.

State in which Paid.	Where Issued.				Total.
	In the Commonwealth.	In New Zealand.	In the United K'dom.	In Other Countries.	
			NUMBER.		
New South Wales ..	962,160	29,858	16,085	10,082	1,018,185
Victoria	436,169	18,595	10,216	5,842	470,822
Queensland ..	331,666	2,098	5,332	2,141	341,237
South Australia ..	132,390	1,348	2,886	1,126	137,750
Western Australia ..	190,376	2,024	4,507	1,452	198,359
Tasmania	85,548	3,487	1,191	1,326	91,552
Commonwealth ..	2,138,309	57,410	40,217	21,969	2,257,905
			VALUE.		
	£	£	£	£	£
New South Wales ..	5,098,998	138,051	80,922	49,740	5,367,711
Victoria	2,607,648	72,244	48,029	27,102	2,755,023
Queensland.. ..	1,700,845	11,665	27,560	10,147	1,750,217
South Australia ..	659,491	6,448	12,742	6,033	684,714
Western Australia ..	1,063,768	6,450	22,954	7,740	1,100,912
Tasmania	412,847	12,180	5,052	4,923	435,002
Commonwealth ..	11,543,597	247,038	197,259	105,685	12,093,579

In the above tables money orders payable or issued in foreign countries, which have been sent from or to the Commonwealth through the General Post Office at London, are included in those payable or issued in the United Kingdom.

14. *Classification of Postal Notes Paid.*—The subjoined table shews the number and value of postal notes paid during the year 1919–20 in each State and in the Commonwealth, classified according to the State in which they were issued.

Particulars regarding the total number and value of postal notes issued and paid in each of the last six years are given in paragraph 12 hereof.

NUMBER AND VALUE OF POSTAL NOTES PAID, CLASSIFIED ACCORDING TO STATE OF ISSUE, 1919–20.

Particulars.	Postal Notes Paid in—						
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
				NUMBER.			
Issued in same State ..	3,030,931	2,138,623	988,276	497,004	521,410	271,225	7,447,469
Issued in other States ..	331,975	322,697	103,648	55,370	26,176	1,839,513	2,679,379
Total ..	3,362,906	2,461,320	1,091,924	552,374	547,586	2,110,738	10,126,848

NUMBER AND VALUE OF POSTAL NOTES PAID, CLASSIFIED ACCORDING TO STATE OF ISSUE, 1919–20—*continued.*

Particulars.	Postal Notes Paid in—						
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	VALUE.						
	£	£	£	£	£	£	£
Issued in same State ..	1,141,341	737,698	354,026	161,113	198,443	87,054	2,679,675
Issued in other States ..	122,295	117,859	36,238	21,562	10,399	420,559	728,912
Total ..	1,263,636	855,557	390,264	182,675	208,842	507,613	3,408,587

15. **Value Payable Parcel and Letter Post.**—This is a system under which the Postal Department undertakes to deliver registered articles sent by parcel post within the Commonwealth, or between Papua and the Commonwealth, to recover from the addressee on delivery a specified sum of money fixed by the sender, and to remit the sum to the sender by money order, for which the usual commission is charged. The object of the system is to meet the requirements of persons who wish to pay at the time of receipt for articles sent to them, and also to meet the requirements of traders and others who do not wish their goods to be delivered except on payment. In addition to the ordinary postage, commission on the value of the articles transmitted at the rate of twopence on sums not exceeding ten shillings, and one penny for each additional five shillings or part thereof, must be prepaid by postage stamps affixed to the articles, distinct from the postage, and marked "commission." The registration fee (threepence) and the proper postage must also be prepaid. If the addressee refuse delivery, the parcel is returned to the sender free of charge. Any article that can be sent by parcel post may be transmitted as a value-payable parcel. Letters may also be sent as value-payable parcels, if prepaid at the letter rate of postage and handed to the parcels clerk, in the same manner as in the case of parcels. The subjoined statement gives particulars of the number and value of parcels sent through the Value Payable Post in each State during the years 1914 to 1919–20. From these figures it will be seen that the business in Queensland is in excess of the combined transactions of all the other States, chiefly owing to the fact that the system has been established in that State for some years, but was only extended to the whole Commonwealth with the advent of Federal control of the post office. The system has also found favour for a number of years in Western Australia and continues to make marked progress in New South Wales, but the amount of business transacted in Victoria, South Australia, and Tasmania remains negligible.

VALUE PAYABLE PARCELS POST.—NUMBER POSTED, VALUE COLLECTED, AND REVENUE, 1914 TO 1919–20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	NUMBER OF PARCELS POSTED.						
	No.	No.	No.	No.	No.	No.	No.
1914	12,987	1,698	37,657	251	22,759	26	75,378
1915–16	13,979	1,395	45,467	206	22,108	35	83,190
1916–17	16,794	1,530	53,585	318	22,427	28	94,682
1917–18	21,962	1,204	63,523	473	23,421	37	110,620
1918–19	28,544	1,579	68,601	588	24,211	22	123,545
1919–20	38,713	2,134	94,733	666	29,628	76	165,950

VALUE PAYABLE PARCELS POST.—NUMBER POSTED, VALUE COLLECTED, AND REVENUE, 1914 TO 1919-20—*continued.*

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
VALUE COLLECTED.							
	£	£	£	£	£	£	£
1914	20,181	3,412	51,205	872	36,972	27	112,669
1915-16	20,214	2,095	50,917	451	35,239	61	108,977
1916-17	24,268	2,704	74,418	463	35,496	56	137,405
1917-18	37,813	2,310	88,388	1,089	37,155	97	166,852
1918-19	54,876	3,003	98,882	1,492	38,244	72	196,569
1919-20	85,055	3,804	137,976	2,555	46,964	336	276,690
REVENUE, INCLUDING POSTAGE, COMMISSION ON VALUE, REGISTRATION AND MONEY ORDER COMMISSION.							
	£	£	£	£	£	£	£
1914	1,618	304	4,901	47	3,108	3	9,981
1915-16	1,715	183	5,793	33	3,022	3	10,749
1916-17	2,154	190	6,779	39	3,060	4	12,226
1917-18	3,338	153	8,839	70	3,165	5	15,570
1918-19	3,917	223	9,637	82	3,275	4	17,138
1919-20	5,435	331	13,076	106	4,000	15	22,963

In 1905, the first year for which complete figures for the Commonwealth are available, the number of value payable parcels posted was 24,920, of an aggregate value of £34,990. For 1919-20 the corresponding figures were 165,950 and £276,690, an increase in number of 141,030 and in value of £241,700. The average value collected on parcels in 1905 was £1 8s., and in 1919-20 £1 13s. 4d. The average value collected in each of the States for the six years 1914 to 1919-20 was New South Wales £1 16s. 5d., Victoria £1 16s. 4d., Queensland £1 7s. 7d., South Australia £2 15s. 4d., Western Australia £1 11s. 10d., Tasmania £1 17s. 11d., and for the Commonwealth £1 10s. 7d.

16. **Agricultural Produce Parcels Post.**—On the 1st July, 1914, the Postal Department, acting in conjunction with the Railway Department, inaugurated a system under which parcels of agricultural produce, fish, cut flowers, etc., might be transmitted at cheap rates from places in the country to persons living within six miles of the General Post Office, Melbourne. The service was introduced, by way of experiment, into the State of Victoria only, but as a loss of £3,000 per annum was incurred, the service has been discontinued.

17. **Transactions of the Dead Letter Office.**—Under sections 45 to 53 of the Post and Telegraph Act 1901, the Postmaster-General may cause to be opened all unclaimed and undelivered postal articles originally posted within the Commonwealth which have been returned from the places to which they were forwarded. Every unclaimed letter and postal article must be kept for the prescribed period at the office to which it has been transmitted for delivery, and must then be sent to the General Post Office. Letters and packets originally posted elsewhere than in the Commonwealth are returned to the proper authorities in the country in which they were so posted, or if originally posted in the Commonwealth are returned to the General Post Office in the State where posted; but unclaimed or undelivered newspapers may be forthwith sold, destroyed, or used for any public purpose. Opened postal articles not containing anything of value are returned to the writer or sender if his name and address can be ascertained, but may otherwise be destroyed forthwith. As regards an opened letter or packet containing valuable or saleable enclosures, a list and memorandum of the contents are kept, and a notice is sent to the person to whom the letter or packet is addressed if he be known, or otherwise to the writer or sender thereof if he be known. Upon

application within three months of the date of such notice the letter or packet may be claimed by the addressee, or, failing him, by the writer or sender. If unclaimed within three months, the letter and contents may be destroyed or sold, and the proceeds paid into the consolidated revenue fund. The following table shews the total number of letters, postcards and lettercards, and packets and circulars, including Inland, Inter-State, and International, dealt with by the Dead Letter Offices in the several States of the Commonwealth in 1919–20, and the methods adopted in their disposal.

TRANSACTIONS OF DEAD LETTER OFFICES IN THE COMMONWEALTH, 1919–20.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
LETTERS, POSTCARDS, AND LETTERCARDS.							
Returned direct to writers or delivered	589,028	459,730	257,776	106,873	117,304	62,196	1,592,907
Destroyed in accordance with Act	100,266	78,659	23,398	17,781	11,687	6,450	238,241
Returned to other States or Countries as unclaimed	143,542	66,381	43,921	23,893	28,473	11,796	318,006
Total	832,836	604,770	325,095	148,547	157,464	80,442	2,149,154
PACKETS AND CIRCULARS.							
Returned direct to writers or delivered	615,300	134,321	63,828	28,044	29,375	2,184	873,052
Destroyed in accordance with Act	121,100	428,698	12,228	44,179	687	1,050	607,942
Returned to other States or Countries as unclaimed	7,931	10,696	45,606	11,940	5,470	32,124	113,767
Total	744,331	573,715	121,662	84,163	35,532	35,358	1,594,761
Grand total (letters, packets, etc.)	1,577,167	1,178,485	446,757	232,710	192,996	115,800	3,743,915

18. ***Post Offices and Receiving Offices and Employees.***—The following tables shew the numbers of post and receiving offices and the corresponding numbers of employees in each State and in the Commonwealth from 1914 to 1919–20 inclusive :—

NUMBER OF POST AND RECEIVING OFFICES AT 31st DECEMBER, 1914, AND 30th JUNE, 1916 TO 1920.

State.	1914.		1916.		1917.		1918.		1919.		1920.	
	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.
New South Wales	2,049	574	2,074	566	2,040	548	2,031	548	2,037	562	2,034	559
Victoria ..	1,815	871	1,787	872	1,782	856	1,726	878	1,715	854	1,707	829
Queensland ..	629	728	642	689	643	685	643	659	640	643	645	627
South Australia	680	131	739	105	705	125	670	143	666	125	674	118
Western Australia	418	158	431	182	412	206	407	212	402	201	402	209
Tasmania ..	400	63	409	69	398	83	396	85	406	83	405	83
Commonwealth	5,991	2,525	6,082	2,483	5,980	2,503	5,873	2,525	5,866	2,468	5,867	2,425

NUMBER OF EMPLOYEES AND NUMBER OF MAIL CONTRACTORS, AT 30th JUNE, 1915 TO 1920.

State.	1915.		1916.		1917.		1918.		1919.		1920.	
	Employees.	Mail Contractors. (a)	Employees.	Mail Contractors.	Employees.	Mail Contractors.	Employees.	Mail Contractors.	Employees.	Mail Contractors.	Employees.	Mail Contractors.
Central Office ..	92	..	83	..	91	..	92	..	84	..	83	..
New South Wales	11,343	2,512	12,193	1,899	11,821	1,915	11,684	1,972	11,732	1,964	11,334	1,912
Victoria ..	8,451	1,132	8,567	1,152	8,320	1,137	8,249	1,105	8,499	1,112	7,962	1,089
Queensland ..	4,555	813	4,441	806	4,375	801	4,477	794	4,289	787	4,778	723
South Australia	2,549	307	2,683	348	2,755	352	2,737	368	2,768	350	2,679	427
Western Australia	2,336	351	2,684	284	2,451	279	2,462	271	2,258	264	2,110	286
Tasmania ..	1,148	281	1,204	224	1,214	221	1,212	250	1,173	227	1,156	227
Commonwealth	30,474	5,396	31,755	4,713	31,027	4,705	30,913	4,760	30,803	4,704	30,102	4,664

(a) Numbers at 31st December, 1914.

19. **Gross Revenue of Postal Department.**—The following table shews the gross revenue of the Postal Department for the years ended 30th June, 1914 to 1920 inclusive, under three heads, viz., the Postal, the Telegraph, and the Telephone branches. In the Postal branch is included the revenue derived from money-order commissions, poundage on postal notes, private boxes and bags, and miscellaneous sources. The following figures and also those for expenditure are supplied by the Treasury and represent the actual collections and payments for the periods mentioned :—

GROSS REVENUE OF POSTAL DEPARTMENT, 1913-14 TO 1919-20.

Year ended 30th June—	Postal Branch.	Telegraph Branch.	Telephone Branch.	Total.
	£	£	£	£
1914	2,680,944	834,316	996,047	4,511,307
1915	2,616,887	878,238	1,099,417	4,594,542
1916	2,938,837	893,904	1,220,855	5,053,596
1917	2,997,714	950,842	1,549,961	5,498,517
1918	2,998,724	1,032,317	1,731,149	5,762,190
1919	3,129,932	1,103,664	1,876,929	6,110,525
1920	3,310,995	1,274,527	2,159,450	6,744,972

The following table gives an analysis of the actual collections of the Postal Department in each State and in the Commonwealth during the year ended 30th June, 1920 :—

ANALYSIS OF GROSS REVENUE OF POSTAL DEPARTMENT, 1919-20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
Postage	1,133,398	826,875	409,867	241,017	160,200	103,373	2,874,730
Telegraphs ..	444,556	269,930	201,623	215,608	110,705	41,105	1,274,527
Telephones ..	866,795	596,290	306,881	202,085	123,920	64,026	2,159,450
Money order commission .. / Poundage on postal notes*	62,275	34,023	22,621	10,338	12,329	5,589	147,175
Private boxes and bags	14,029	7,007	7,968	4,287	2,390	1,609	37,188
Miscellaneous ..	81,565	73,710	27,559	21,818	33,431	8,819	251,902
Total ..	2,602,618	1,808,835	975,917	695,106	442,975	224,521	6,744,972

20. Expenditure in respect of the Postal Department.—The subjoined table represents the actual payments made as shewn by records kept for Treasury purposes in respect of the Postal Department in the Commonwealth for each of the years ended 30th June, 1915 to 1920 inclusive. The figures given include certain items of expenditure, such as rent, repairs and maintenance of buildings, fittings and furniture, sanitation, water supply, new buildings and additions and interest on transferred properties.

TOTAL EXPENDITURE IN RESPECT OF POSTAL DEPARTMENT, 1914-15 TO 1919-20.

Year	1914-15.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
Expenditure .. £	6,315,744	6,366,431	5,879,768	5,677,783	5,826,049	6,650,309

The following table shews, as far as possible, the distribution of expenditure on various items in each State during the year ended 30th June, 1920. The table is not to be regarded as a statement of the working expenses of the Department, since items relating to new works, interest, etc., are included therein.

DISTRIBUTION OF EXPENDITURE OF POSTAL DEPARTMENT, 1919-20.

Particulars.	Central Office.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£	£	£	£	£	£	£	£
Salaries and contingencies—								
Salaries	23,507	1,308,930	849,155	419,267	287,095	287,963	107,044	3,282,961
Conveyance of mails ..	..	364,013	144,418	166,569	71,304	49,353	40,670	836,327
Contingencies ..	2,335	565,973	341,152	230,486	140,710	103,758	55,354	1,439,768
Cables	3,707	..	..	..	..	..	..	3,797
Ocean mails ..	111,154	..	..	..	..	..	..	111,154
Miscellaneous ..	..	15,294	9,124	2,435	2,081	1,597	2,643	33,174
Pensions and retiring allowances	..	25,887	35,403	1,364	..	5,189	..	67,843
Rent, repairs, maintenance	130	31,036	14,198	8,735	3,107	3,973	1,236	62,415
Supervision of works ..	..	774	577	280	183	128	83	2,025
Proportion of Audit Office expenses	..	2,378	1,775	860	561	393	258	6,225
Unforeseen expenditure	25	62	39	2	..	110	7	245
New works—								
Telegraph and telephone	..	217,362	95,709	64,901	53,595	30,466	8,506	470,539
New buildings, etc. ..	..	6,066	2,237	623	1,783	31,324	826	42,859
Interest on transferred properties	..	81,645	45,765	31,999	29,080	19,279	7,366	215,134
Other	..	..	..	..	..	..	..	(a)75,843
Total	140,948	2,619,420	1,539,552	927,521	589,499	533,533	223,993	6,650,309

(a) Particulars of apportionment to each State not available.

21. Balance Sheet of the Postmaster-General's Department.—The first complete balance sheet and profit and loss account of the Postmaster-General's Department was presented in November, 1913, for the year ending 30th June, 1913. As will be seen from the figures of the General Profit and Loss Account hereunder, the year 1919–20, after providing for depreciation, pension and retiring allowances, closed with a surplus of £1,098,344. From this amount £610,390, interest on capital, was deducted, leaving a profit of £487,954, or £36,691 less than that of 1918–19.

Tables shewing the results of the working of the Department for the years 1915–16 to 1919–20 are appended :—

GENERAL PROFIT AND LOSS ACCOUNT, POSTMASTER-GENERAL'S DEPARTMENT, 1915–16 TO 1919–20.

Items.	1915–16.(a)	1916–17.(a)	1917–18.(a)	1918–19.(a)	1919–20.(a)
	£	£	£	£	£
Total earnings	5,049,569	5,515,769	5,773,954	6,158,571	6,732,096
Total working expenses ..	4,841,667	5,134,533	4,809,571	5,043,891	5,633,752
Surplus	207,902	381,236	964,383	1,114,680	1,098,344
Interest on capital ..	523,892	558,382	577,001	590,035	610,390
Total surplus (+) or deficit (−)	(−)315,990	(−)177,146	(+)387,382	(+)524,645	(+)487,954

(a) Excluding Wireless Telegraphy Branch, which was transferred to the Department of the Navy as from 1st July, 1915.

The deficit for the year 1915–16 shews a reduction of £313,732 as compared with the deficit of the previous year. A still more satisfactory result was obtained in 1916–17 when the year's operations closed with a loss of only £177,146. All past achievements were eclipsed in 1917–18, when for the first time in the history of the Department a profit amounting to £387,382 resulted. In 1918–19 the profit was £524,645, and last year (1919–20) £487,954, a slight reduction on the previous twelve months. The reasons furnished by the Department for the excess of expenditure over revenue in the years 1913–14 to 1916–17 were increases in wages and salaries, higher rates for the conveyance of inland mails, and increased prices for stores, etc., while in 1914–15 the prevailing drought and the effect of the war upon earnings were also contributing factors.

The following tables shew the yearly results of the working of the various branches, and the Department as a whole, and in each State from 1913–14 to 1919–20 :—

PROFIT OR LOSS OF THE VARIOUS BRANCHES OF THE POSTAL DEPARTMENT, 1913–14 TO 1919–20.

Year ended 30th June—	Postal.		Telegraph.		Telephone.		All Branches.	
	Loss.	Profit.	Loss.	Profit.	Loss.	Profit.	Loss.	Profit.
	£	£	£	£	£	£	£	£
1914 ..	..	24,155	151,446	..	296,424	..	a501,457	..
1915 ..	81,296	..	114,555	..	390,704	..	b629,722	..
1916 ..	..	42,131	86,426	..	271,695	..	315,990	..
1917 ..	168,896	..	25,484	..	..	17,234	177,146	..
1918 ..	..	237,421	..	28,116	..	121,845	..	387,382
1919 ..	..	239,337	..	63,133	..	222,175	..	524,645
1920 ..	..	81,217	..	95,636	..	311,101	..	487,954

(a) Includes wireless £35,656, pensions and interest on assets £42,086. (b) Includes wireless £43,167.

In the period of seven years covered by the foregoing table it will be observed that the operations of the Postal branch closed with a profit in each of the years 1914, 1916, 1918, 1919, and 1920, the Telephone branch in 1917, 1918, 1919, and 1920, and the Telegraph branch in 1918, 1919, and 1920.

PROFIT OR LOSS OF THE POSTAL DEPARTMENT IN THE VARIOUS STATES, 1916–17 TO 1919–20.

State.	1916–17.		1917–18.		1918–19.		1919–20.	
	Loss.	Profit.	Loss.	Profit.	Loss.	Profit.	Loss.	Profit.
	£	£	£	£	£	£	£	£
New South Wales ..	102,434	..	..	140,354	..	155,159	..	95,285
Victoria	..	86,330	..	177,805	..	254,013	..	259,507
Queensland ..	33,037	..	..	68,929	..	60,103	..	61,311
South Australia ..	..	31,969	..	104,868	..	132,772	..	151,984
Western Australia	146,909	..	102,409	..	81,460	..	81,391	..
Tasmania ..	13,065	..	2,165	..	..	4,058	..	1,258
Commonwealth	295,445	118,299	104,574	491,956	81,460	606,105	81,391	569,345

22. **Royal Commission on Postal Services.**—In 1908 a Royal Commission was appointed to report on the Postal, Telegraphic, and Telephonic services of the Commonwealth. An account of the work done by the Commission will be found in earlier issues of the Year Book. (See Year Book No. 6, p. 766.)

§ 2. Telegraphs.

1. **First Lines Constructed.**—The electric telegraph was first introduced into Australia for use by the public in the year 1854, when a line from Melbourne to Williamstown was opened. The first line in South Australia, from Adelaide to Port Adelaide, was opened in 1856, while the first line in New South Wales was brought into operation in 1858, when the line from Sydney to Liverpool, 22 miles in length, was opened. In Tasmania the first telegraph line was completed in 1857, while in the following year communication was established between Sydney, Melbourne, and Adelaide. The first lines to be constructed in Queensland were those between Brisbane and Warwick, and Brisbane and Lytton, distances of 169 and 12 miles respectively. These lines were working in 1861. In Western Australia the first telegraph constructed was from Perth to Fremantle, a distance of 12 miles, which was brought into use in 1869, and in the same year the cable joining Tasmania with the continent of Australia was completed.

2. **Development of Services.**—During the period from 1871 to 1881 great progress was made throughout Australia in the way of telegraphic construction, over 14,000 miles of line, exclusive of railway telegraph lines, being opened for use, making the total length of the line open at the end of the year 1881, 25,470 miles. At the present time the systems of telegraph lines throughout Australia are well developed. The longest line extends from Thursday Island, in Torres Strait, by submarine cable to Paterson, on the mainland of Cape York Peninsula; from Paterson the line runs in a southerly direction as far as Brisbane, where it joins the main interstate line to Sydney, Melbourne, and Adelaide; from Adelaide it runs to Port Augusta, then on to Port Lincoln, on Eyre's Peninsula, and thence to Eucla, on the Western Australia boundary; from Eucla the line extends along the coast of the Great Australian Bight to Albany, and thence it runs adjacent to the west coast of Western Australia as far as Onslow, via Perth, Geraldton, and Carnarvon. From Onslow connexion extends to Broome, in Roebuck Bay. From Roebuck Bay the line crosses the Kimberley district in an easterly direction, and then runs north as far as the terminus at Wyndham. In Queensland a line runs to Burketown, near the coast of the Gulf of Carpentaria, via Normanton; another line extends to Cloncurry and Urandangi, in the extreme west of the State. Branch lines extend to all important coastal and inland towns, while considerable networks of lines converge from the country districts towards the centres of population. From Adelaide the transcontinental line runs in a northerly direction to Darwin, from which place communication is provided with Europe by submarine cable by way of Batavia, Singapore, and Madras. In Western Australia a line runs from Eucla to the Coolgardie goldfields via Balladonia and Dundas, and from Coolgardie communication is provided with Perth, and with Mount Sir Samuel in the East Murchison district.

3. Number of Telegraph Offices and Length of Lines and Wire Open.—The following table shews the number of telegraph offices and the length of telegraph lines and of telegraph wire available for use in the Commonwealth from 1916 to 1920 inclusive. *It will be noticed that 143,388 miles of wire are available for telegraph purposes, of which* 79,930 miles are also used for telephone purposes.

NUMBER OF TELEGRAPH OFFICES AND LENGTH OF LINE AVAILABLE AT 30th JUNE, 1916 TO 1920.

Particulars.	1916.	1917.	1918.	1919.	1920.
Number of offices	6,119	6,189	6,196	6,219	6,251
Length of wire (miles)—					
Telegraph purposes only	62,224	62,804	62,981	63,148	63,458
Telegraph and telephone purposes ..	71,267	73,663	74,682	78,004	79,930
Length of line (miles)—					
Conductors in Morse cable ..	2,959	3,232	2,218	2,153	2,152
Conductors in submarine cable ..	1,196	1,680	1,708	1,705	1,736
Pole routes	58,889	59,706	59,849	60,275	60,693

The following table gives corresponding particulars for each State for the year 1919–20 :—

NUMBER OF TELEGRAPH OFFICES, LENGTH OF LINE AND WIRE, IN EACH STATE, AT 30th JUNE, 1920.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Number of offices ..	2,247	1,663	822	543	524	452	6,251
Length of wire (miles)—							
Telegraph purposes only..	21,512	6,224	15,072	11,609	8,905	136	63,458
Telegraph and telephone purposes	29,898	16,679	14,605	6,368	7,145	5,235	79,930
Length of line (miles)—							
Conductors in Morse cable	696	1,072	349	..	21	14	2,152
Conductors in submarine cable	1,112	437	65	68	5	49	1,736
Pole routes	23,755	7,409	11,836	6,745	8,270	2,678	60,693

4. Revenue and Expenditure.—Particulars as to the revenue from the telegraph *systems for the years 1914 to 1920 are given on page 650.*

5. Number of Telegrams Despatched.—The following table shews the total number of telegrams despatched to destinations within the Commonwealth in each of the years 1914 to 1919–20 inclusive :—

NUMBER OF TELEGRAMS DESPATCHED, 1914 TO 1920.

Year ..	1914.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
Number (a)	13,918,135	13,939,424	14,088,606	14,633,859	15,461,034	17,934,998

(a) Including interstate cablegrams.

The following table shews the number of telegrams despatched in each State in 1919-20 for delivery in that State, and the number despatched in each State for delivery in other States, and also the total number of telegrams—exclusive of cablegrams for places outside the Commonwealth—despatched in each State :—

NUMBER OF TELEGRAMS DESPATCHED IN EACH STATE, 1919-20.

State, etc.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
Inland	4,779,884	2,977,725	2,338,604	1,108,122	1,514,501	402,578	13,121,414
Interstate (a) ..	1,460,245	1,359,122	716,938	567,655	452,114	257,510	4,813,584
Total ..	6,240,129	4,336,847	3,055,542	1,675,777	1,966,615	660,088	17,934,998

(a) Including interstate cablegrams.

6. **Rates for Transmission of Telegrams.**—The original rates for the transmission of telegrams within the Commonwealth were fixed by section 7 of the Post and Telegraph Rates Act 1902, and came into force on the 1st November, 1902. Under this Act charges *are made for telegrams according to whether they are "ordinary" or "press" telegrams.* "Press" telegrams are defined to mean those the text of which consists of political, commercial, etc., information, and of news intended for publication in a newspaper. The telegram must be sent by an authorised correspondent, and must be addressed to a registered newspaper or recognised news agency. The subjoined tables shew the scales of charges imposed by an amending Act which came into operation on 1st October, 1920 :—

SCALE OF CHARGES FOR ORDINARY TELEGRAMS.

Particulars.	Town and Suburban, within Prescribed Limits, or within 15 miles from the Sending Station.	Other Places within the State, except Town and Suburban.	Interstate.
	s. d.	s. d.	s. d.
Including address and signature—			
Not exceeding 16 words	0 9	1 0	1 4
Each additional word	0 1	0 1	0 1

Double the foregoing rates are imposed for the transmission of telegrams on Sunday, Christmas Day, and Good Friday, and between the hours of 8 p.m. and 9 a.m., and for telegrams lodged for "urgent" transmission.

SCALE OF CHARGES FOR PRESS TELEGRAMS.

Particulars.	Within any State.	Interstate.	Relating to Parliamentary, Executive, Departmental, and other Commonwealth Proceedings as may be prescribed.(a)
	s. d.	s. d.	s. d.
Not exceeding 25 words	0 8	1 4	1 4
From 26 to 50 words	0 11	1 10	1 8
From 51 to 100 words	1 9	3 6	2 0
Every additional 50 words	0 8	1 4	0 8

7. **Letter-telegrams.**—Commencing in February, 1914, the Postal Department instituted a system of letter-telegrams between all telegraph offices which are open between 7 p.m. and midnight. The letter-telegrams are forwarded during the night by telegraph to the office of destination and are delivered as ordinary letters by the first letter delivery, or are despatched by mail to the address in the ordinary way. The object of the Department in introducing the system was to utilize profitably the unoccupied time of the staff, but it was found that ordinary business and revenue suffered through the extensive use of the system by the business community, consequently the concession has been limited to messages of a social, domestic or private nature. Letter-telegrams may be exchanged between any of the following offices; (*a*) offices which are open for the receipt of ordinary business between 7 p.m. and midnight, (*b*) offices which are open for ordinary or press business after 7 p.m. The rates charged throughout the Commonwealth are one shilling and threepence for the first 30 words, and one halfpenny for each additional word, double these rates being charged on Sundays. At the end of 1920 the service applied to 103 offices throughout the Commonwealth.

8. **Wireless Telegraphy.**—Prior to September, 1915, the Postmaster-General was, under the Wireless Telegraphy Act 1905, given the exclusive privilege of establishing and using stations and appliances for receiving and transmitting messages by wireless telegraphy within Australia, and an amendment of the Act in 1919 extended the Commonwealth's control to wireless telephony also. Licences for experimental work are granted by the Postmaster-General under the authority of the Act. Licences are now issued (*a*) in respect of wireless telegraphy installations on ships registered in Australia; (*b*) in respect of experimental work carried out by amateur investigators into radio-phenomena generally.

The administration of the Radio Service was under the control of the Navy Department from September, 1915, to 1st July, 1920, when it reverted to the Postal Department, although the actual transfer was not effected until 28th October, 1920. Upon the resumption of control by the Postal Department immediate action was taken to extend the uses of wireless both for inland and trans-ocean public requirements. The regulations were amended to permit of any person obtaining a licence to erect and operate his own station in remote localities not served by land lines. Where such stations are erected to the Department's satisfaction the Department undertakes to provide communication with the landline system. In furtherance of this policy collecting stations are about to be erected at Powell's Creek, N.T., and Camooweal, Q., to work in conjunction with private stations. In connexion with trans-ocean communication the recommendation of the Imperial Wireless Committee providing for the erection of a high-powered station in Australia as a terminal of the Imperial wireless chain and other schemes are under consideration. The capabilities of wireless telephony as a means of communication with isolated localities are also engaging attention.

In preparing the initial scheme for the construction of wireless stations in the Commonwealth, it was evident, viewing the insular position of Australia, that, for an effective system of radio-telegraphic communication to be given, not only must the service offered be continuous, but the distances separating the stations must to a great extent be governed by the normal working range of the vessels with which communication would have to be established. With this object in view the Commonwealth Government has constructed and erected stations at or near the following localities:—Port Moresby, Thursday Island, Cooktown, Townsville, Rockhampton, Brisbane, Sydney, Flinders Island, Melbourne, Hobart, King Island, Adelaide, Esperance, Perth, Geraldton, Broome, Wyndham, Darwin, Samarai and Misima (Louisiade Archipelago). In the Pacific the Commonwealth controls stations at Rabaul, Madang, Nauru, Kieta, Bita Paka, Morobe, Eitape, Manus, and Kawieng; all these being on former German territory now administered by Australia. The stations at Sydney, Perth, and Townsville are of a medium-power type. All the other stations are of low power, and constitute the internal scheme of inter and ship-to-shore communication. The ordinary ship-to-shore communication rates are, for vessels registered by the Commonwealth or New Zealand, 5d. per word, allocated as follows: 3d. for land station and 2d. for ship station charge. For vessels registered by other administrations 10d. per word, allocated as follows: 6d. for land station and 4d. for the ship station charge. Where the message has to be transmitted over land-lines, the charge is 1d. per word additional with a land station

charge of 2d. per word. Between the Commonwealth and Port Moresby the rate is 2d. per word, and between the mainland and Flinders Island or King Island 1d. per word, plus ordinary land-line charges.

Radio-telegraphic stations have been erected at Suva, Ocean Island, Tulagi, and Vila under the control of the High Commissioner of the Pacific, while the New Zealand Government has erected high-power stations at Awanui (Auckland), Awarua (Bluff), and Apia (Samoa), and low-power stations at Auckland, Chatham Islands, Raratonga (Cook Islands), and Wellington.

§ 3. Submarine Cables.

1. **First Cable Communication with the Old World.**—In earlier issues of the Year Book will be found a detailed account of the connection of Australia with the old world by means of submarine cables. (See No. 6, p. 770.)

2. **The Tasmania-Victoria Cables.**—A submarine cable joining Tasmania to the continent of Australia was opened for use in 1869, the total length being 170 miles. The line was owned by the Eastern Extension Telegraph Company, and was subsidised by the Tasmanian Government until the year 1909. On the 28th February, 1908, the Postmaster-General entered into an agreement with Messrs. Siemens Brothers and Company Ltd., of London, for the manufacture and laying of two submarine cables between Tasmania and Victoria. The new cables were taken over on the 24th March, 1909, and opened to the public on the 1st May, 1909, the day following the expiration of the agreement with the Eastern Extension Company. Their aggregate length is approximately 350 nautical miles of main cable, and 20 nautical miles each of intermediate and shore-end cable, making a total of 390 nautical miles. The contract price was £52,447.

3. **The Eastern Extension Company's Cables.**—In addition to the first Victoria-Tasmania cable and the original cable from Darwin (see Year Book No. 6, p. 770), the Eastern Extension Company has constructed several other cables connecting with various places in the Commonwealth. (*a*) In 1879 the original cable via Banjoewangie was duplicated, the States of New South Wales, Victoria, South Australia, Western Australia, and Tasmania having agreed to pay the above company a subsidy of £32,400 per annum for a period of twenty years, the amount to be divided between the States on a population basis. (*b*) In 1881 a cable was constructed connecting Broome, in Roebuck Bay, W.A., with Banjoewangie, and remained in operation until 1914, in which year it was taken up. (*c*) In July, 1899, the company offered to lay a cable direct to Great Britain via the Cape of Good Hope, and also offered reductions in the rates charged, if the States would agree to certain conditions giving the company the right of direct dealing with the public. The States of South Australia, Western Australia, and Tasmania accepted the terms offered, and New South Wales entered into the agreement in January, 1901. The cable was opened via Fremantle and Durban in October, 1901. (*d*) Another submarine cable from Fremantle to Adelaide forms an alternative line of communication between the eastern States and Western Australia. (*e*) There is an alternative route, partly belonging to the Eastern Extension Company and connecting the Port Darwin-Singapore cable with London, via Hong Kong, Shanghai, Possiet Bay (Pacific Russia), Libau (Russian Baltic), and Newbiggin (England). (*f*) In 1909 a cable was laid from Java to Cocos Island, thus affording another route from Australia to South Africa, whilst in April, 1911, a radio-telegraphic station was opened at Cocos Island, thus strengthening the line of communication between Australia and the East.

4. **The Pacific Cable.**—In July, 1898, a conference of representatives of Great Britain, Canada, New South Wales, Victoria, Queensland, South Australia, and New Zealand was held for the purpose of considering a project for a cable to be laid across the Pacific Ocean, touching only British territory on its way from Australia to Canada, thus providing an "*All Red*" route, as it is termed, for a cable system between England and Australia. In the following year it was agreed at a meeting held by representatives

of the countries interested that the cable should be laid and that Great Britain and Canada should each pay five-eighteenths of the cost, and the States of New South Wales, Victoria, Queensland, and the Dominion of New Zealand should each pay one-ninth. The construction and management of the cable were placed under the control of a Board composed of seven members—two each from Great Britain, Canada, and Australia, and one from New Zealand—called the Pacific Cable Board. The Australian shore-end of the cable was landed at Southport, Queensland, in March, 1902, and the cable was completed on the 31st October, 1902, and opened for traffic on the 7th December of the same year. There are cable stations at Norfolk Island, Fiji, and Fanning Island, and a branch cable runs from Norfolk Island to New Zealand. In 1910 the Board leased a wire from Bamfield, British Columbia, to Montreal, thus extending the Pacific cable system from Queensland to Montreal. The traffic is then carried across the Atlantic to the United Kingdom by the cables of the Anglo-American and Commercial Companies, or if desired the Marconi wireless system between Canada and the United Kingdom may be availed of for either homeward or outward messages at a reduction of 2d. on the through cable rate of 3s. per word. The operations of the Pacific cable for the year ended 31st March, 1920, resulted in a profit of £27,979, after providing working expenses, interest on loan and renewal fund contributions. In addition to the usual annual contribution of £30,000, a sum of £323,000 was transferred to the renewal fund to replace any loss by depreciation of securities in which the fund is invested and to strengthen the position of such fund for future contingencies. After deducting the annual sinking fund instalment of £17,545 from the profit of £27,979, there remained a surplus of £10,434, whereof the Commonwealth's share was £3,478. In accordance with the Pacific Cable Act 1901 the surplus was applied in the reduction of the balance of the original loan of £2,000,000. The following table shews particulars of the revenue, expenditure, total profit or loss, and the proportion of the loss payable by the Commonwealth for the financial years 1911–15, and the proportion of profit credited to the Commonwealth for the years 1916–20.

REVENUE, EXPENDITURE, AND PROFIT OR LOSS ON WORKING OF PACIFIC CABLE, 1911 TO 1920.

Year ended the 31st March—	Revenue.	Expenditure (including Annuities and Renewal Fund).	Profit or Loss.	Commonwealth Proportion of Loss or Profit.
	£	£	£	£
1911 ..	138,678	186,888	Loss 48,210	Loss 16,071
1912 ..	159,150	199,649	„ 40,499	„ 13,500
1913 ..	167,901	200,171	„ 32,270	„ 10,757
1914 ..	197,848	217,798	„ 19,950	„ 6,650
1915 ..	225,045	232,961	„ 7,916	„ 2,638
1916 ..	310,516	292,592	Profit 17,924	Profit 5,975
1917 ..	336,774	332,543	„ 4,231	„ 1,410
1918 ..	411,061	385,668	„ 25,393	„ 8,464
1919 ..	564,097	554,516	„ 9,581	„ 3,193
1920 ..	664,986	654,552	„ 10,434	„ 3,478

5. **New Zealand Cables.**—A submarine cable joining New Zealand to the Australian Continent was laid in 1876. The line is 1,191 miles in length. The Australian shore-end of the cable is at Botany Bay, while the New Zealand terminus is at Wakapuaka, near Nelson, in the Middle Island, from which place another cable, 109 miles in length, is laid to Wanganui, in the North Island. For a period of ten years after its opening the cable was subsidised by the New South Wales and New Zealand Governments, the total contributions amounting to £10,000 a year. The branch from Norfolk Island to New Zealand of the Pacific cable was opened on the 23rd April, 1902. The length of this cable is 597 miles, the New Zealand terminus being at Doubtless Bay in the north of the North Island. During 1911 a scheme to lay a second cable between New Zealand and Australia (Auckland to Sydney) was adopted by the various Governments concerned, and the laying of the new cable was completed on the 24th December, 1912, the cable being opened for traffic on the 31st December, 1912.

6. **The New Caledonia Cable.**—In April, 1892, a French company, known as the Compagnie Française des Cables Télégraphiques, entered into an agreement with the French, the New South Wales, and the Queensland Governments to lay down a submarine cable between New Caledonia and Queensland in return for guarantees by the French Government to the extent of £8,000, and by the Governments of New South Wales and Queensland to the amount of £2,000 each annually for a period of 30 years. The cable was opened for use in October, 1893, the Australian shore-end being at Burnett Heads, near Bundaberg. The guarantees of the Governments of New South Wales and Queensland have now been transferred to the Commonwealth Government.

7. **Number of Cablegrams Received and Despatched.**—The subjoined table shews the number of cablegrams received and despatched in the Commonwealth from 1917–18 to 1919–20 :—

CABLEGRAMS RECEIVED AND DESPATCHED, COMMONWEALTH, 1917–18 TO 1919–20.

Particulars	Cablegrams Received.			Cablegrams Despatched.			Total Cablegrams Received and Despatched.		
	1917–18.	1918–19.	1919–20.	1917–18.	1918–19.	1919–20.	1917–18.	1918–19.	1919–20.
Number ..	522,746	516,942	502,671	407,293	394,285	478,263	930,039	911,227	980,934

The following table shews the total number of cablegrams received and despatched in each State during the year *1919–20* :—

NUMBER OF CABLEGRAMS RECEIVED AND DESPATCHED IN EACH STATE, 1919–20.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.(a)	C'wealth.
Number received ..	277,879	154,858	20,637	20,858	21,667	6,772	502,671
Number despatched	250,260	153,809	20,652	22,188	23,964	7,390	478,263
Total ..	528,139	308,667	41,289	43,046	45,631	14,162	980,934

(a) Exclusive of interstate cablegrams, which are included with interstate telegrams (see § 2 ante).

8. **Lengths of Cable Routes.**—The following table gives the lengths of various cable routes:—

LENGTHS OF CABLE ROUTES.

Via Darwin.	Miles.	Via South Africa.	Miles.
Adelaide to Darwin	2,134	Perth to Mauritius	4,417
Darwin to Banjoewangie	1,150	Mauritius to Durban	1,786
Banjoewangie to London	9,841	Durban to Cape Town	800
		Cape Town to Madeira	5,715
		Madeira to Penzance	1,341
		Penzance to London	260
Total	13,125	Total	14,319

Via Vancouver.	Miles.	Via Russia.	Miles.
Southport (Queensland) to Norfolk Island..	963	Sydney to Darwin	2,992
Norfolk Island to Suva (Fiji)	1,129	Darwin to Hong Kong	4,237
Suva to Fanning Island	2,351	Hong Kong to Possiet Bay	2,647
Fanning Island to Bamfield (Canada) ..	3,980	Possiet Bay to Libau	6,399
Across Canada	3,450	Libau to Newbiggin (England)	1,657
Canada to Ireland	2,450		
Total	14,323	Total	17,932

9. **Cable Rates.**—In 1872 the cable rate to England was nine guineas for twenty words, but when word rates were brought into general use in 1875, the rate between Great Britain and Australia was fixed at ten shillings and sixpence, subsequently altered to ten shillings and eightpence. In 1886 the Eastern Extension Telegraph Company reduced the rate to nine shillings and fourpence a word for ordinary messages, to seven shillings and a penny for Government messages, and to two shillings and eightpence a word for press messages. At a conference of the postal and telegraphic authorities held in March, 1891, the proposal to reduce the rates to four shillings a word for ordinary messages, three shillings and eightpence for Government, and one shilling and tenpence for press messages was agreed to, the States of New South Wales, Victoria, South Australia, Western Australia, and Tasmania undertaking to make good half the loss which the Eastern Company might suffer through such reductions. The States guaranteed to the company one-half of the amount of receipts short of the sum of £237,736—the amount received by the company in 1889 in respect of cable charges—the other half to be borne by the company. The Government of South Australia was also guaranteed by the other contracting States against any loss to the revenue which the lower cable rates might cause in the working of the overland lines. Queensland subsequently joined the other States in these guarantees. In 1893, however, owing to the heavy losses incurred, the rate for ordinary messages was increased to four shillings and ninepence per word, and at the same time New Zealand joined in the guarantees to the company and to South Australia.

(i) *Present Rates to United Kingdom.* On the acceptance by three of the States of the terms offered by the Eastern Extension Telegraph Company for the construction of a cable via South Africa, the rate for ordinary messages was reduced in May, 1900, to four shillings a word. It was further reduced to three shillings and sixpence in January, 1901, and to three shillings in January, 1902, and this rate has since applied to all cable systems connected with Great Britain with the exception of a partly wireless service which has been introduced by the Pacific Cable Board, and for which the "through" rate has been fixed at two shillings and tenpence per word. Under this arrangement cablegrams passing between Australia and the United Kingdom are transmitted by the Pacific cable between Australia and Canada and by the Marconi wireless system across the Atlantic. The scale for future reductions was to be based on a revenue standard and provided that the rate should be reduced to two shillings and sixpence per word, when the revenue averaged £330,000 per annum. In consequence of the abnormal

conditions created by the war, which involved a large increase in expenditure, this provision has been abrogated, but its restoration is anticipated with a return to normal conditions. In September, 1912, the "through" charge for press cables was reduced from ninepence to sevenpence-halfpenny per word.

(ii) *Deferred Cablegrams.* With a view to affording additional cable facilities and to keeping the Pacific cable fully occupied during the whole 24 hours, proposals were made by the Postmaster-General's Department for the adoption of a system of deferred cablegrams. A meeting of representatives of the administrations and companies concerned was held in London in November, 1910, and the new rates came into force on the 1st January, 1912. Under this system a reduction of 50 per cent. in the charges is made, providing the message is written in plain language, and conveys no other meaning than that which appears on the face of it. Messages can only be transmitted after non-urgent private cablegrams and press cablegrams. Those which have not reached their destination within a period of 24 hours from the time of handing in are transmitted in turn with cablegrams charged full rate. They may be sent via the Pacific or Eastern routes to nearly all countries to which the ordinary rate exceeds tenpence per word. The arrangement, previous to the war, extended to some 60 countries, and became very popular. This service, together with that of the week-end cable letters, has affected the ordinary cable business to a large extent. Deferred press cablegrams, subject to a delay of eighteen hours, may be exchanged between the Commonwealth and the United Kingdom at the rate of fourpence halfpenny per word, and between the Commonwealth and Vancouver at the rate of one penny three farthings per word. The deferred cable service was suspended frequently during the war owing to the pressure of other cable business, and the service has not yet returned to normal conditions.

(iii) *Week-end Cable Letters.* The service of the week-end cable letters between the Commonwealth and the United Kingdom was introduced on the 4th January, 1913. Under this arrangement, messages written in plain language might be lodged at any post office in the Commonwealth or the United Kingdom in time to reach the forwarding cable office by post or telegraph by midnight on Saturday. The messages, which were deliverable by post on Tuesday morning, were charged at the rate of ninepence per word, plus ordinary telegraph rates if required to be forwarded by land telegraph in either the country of despatch or destination.

The system was extended subsequently to messages between the Commonwealth and the Union of South Africa, India, Ceylon, Burma, Canada, Portugal, and Newfoundland. A further benefit was conferred on users, as week-end cables to the countries enumerated were transmitted by telegraph throughout without extra charge. The pressure on the cables during the war rendered the suspension of the week-end service necessary on numerous occasions, and although the service has now been resumed, practically no business was transacted in 1919–20 owing to the suspension of the service for extended periods.

The rates to the countries named, including the United Kingdom, are given hereunder :—

RATES FOR WEEK-END CABLE LETTERS.

Country.	Rate per Word.	Minimum Charge per Telegram.
United Kingdom ..	9d.	15/-
Union of South Africa ..	7d. (plus ½d. for those lodged in Tasmania)	11/8
India, Ceylon, and Burma	7½d.	12/6
Canada (ordinary rate 2s. 4d.)	7d.	11/8
Other parts of Canada ..	8d. to 10d.	12/11 to 16/8
Newfoundland	8½d.	13/9
Portugal	9d.	15/-

Week-end cable letters may also be sent to the United Kingdom or Canada for transmission by registered post to other countries at an extra charge of 5d. per message.

(iv) *Rates to New Zealand.* As a result of the completion of the New Zealand branch of the Pacific cable in 1902, the rates charged for cablegrams between Australia and New Zealand, except to and from Tasmania, were uniformly reduced to fourpence-halfpenny per word. Between New Zealand and Tasmania the charge was fixed at fivepence-halfpenny a word, but it has since been reduced to fourpence-halfpenny. The charge for ordinary cablegrams from New Zealand to Great Britain was reduced from the 1st June, 1902, from five shillings and twopence to three shillings and fourpence a word, and has since been further reduced to three shillings a word.

10. **Subsidised Press Cable Service.**—In October, 1909, a Select Committee of the Commonwealth Senate was appointed to report upon the circumstances of the supply, conditions of sale, and distribution, which affect the Press Cable Service within and from outside the Commonwealth. A majority report of this Committee was issued in December, 1909, and recommended (*a*) the completion of an "All Red" cable route via Canada, (*b*) the conditional subsidization of a press cable association, (*c*) the utilisation of the High Commissioner's office for the dissemination in Australia of Empire news, and (*d*) the amendment of the Copyright Act in regard to cables.

In accordance with the recommendations of this Committee the Commonwealth granted a total subsidy of £6,000, extending over a period of three years, to the Independent Press Cable Service, on the conditions that at least 6,000 cable words were supplied each week, to be sent via Pacific, and that any newspaper proprietary in the Commonwealth was permitted to become a subscriber at rates approved by the Government. This terminated on the 1st July, 1912, and a new arrangement was entered into under which the Commonwealth agreed to grant a subsidy of £2,000 per annum, provided that not less than 26,000 words were sent each month. A later agreement was drawn up to extend for a period of three years from 1st October, 1916, with an annual grant of £1,500, but within a year the service lapsed, the last payment being made by the Government in August, 1917.

11. **Cable Subsidies Paid.**—The agreement between the State Governments and the Eastern Extension Telegraph Company expired on the 30th April, 1900. From the year 1895 onwards the amounts guaranteed—£237,736 to the company and £37,552 to South Australia—were met by the receipts.

The following table shews the total amounts paid by way of cable subsidies for the years 1914–15 to 1919–20:—

TOTAL AMOUNT OF CABLE SUBSIDIES PAID, 1914–15 TO 1919–20.

Year	1914–15.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
Amount .. .. £	6,638	4,860	3,929	3,851	3,756	3,797

As the agreement in connexion with the Tasmanian cable expired in 1909, and as new cables were laid by the Commonwealth Government, the guarantees were, in the course of the year 1910, reduced to those in connexion with the New Caledonia and Pacific cables. From 1915–16 the only cable subsidy paid by the Commonwealth was in respect of the New Caledonian cable guarantee.

§ 4. Telephones.

1. **Development of Telephone Services.**—The Postal Department has established telephone services in all the capital towns and in many of the important centres of population throughout the Commonwealth. Particulars as to the revenue from telephone services for the years 1914–20 are given on page 650 ante.

2. Telephone Rates.—On the 10th December, 1915, revised charges for telephone services came into operation. Under the new scale, ground-rent for telephones is calculated on the number of subscribers connected with the exchange or network, instead of being based on the total population residing within the telephone network, as formerly. The smallest and greatest rental charges remain the same as under the old system, but between these a more gradual scale was introduced. Previously the charge for calls made by a subscriber was at the rate of two calls for one penny up to 2,000 calls per half-year; above that number, three calls for one penny. This charge was increased to one penny per call, without any progressive reduction. At the same time, the public telephone charge per call was increased from one penny to twopence. On 1st October, 1920, telephone charges were again increased, and the rates given in the following table are now in force:—

TELEPHONES.—RENTAL CHARGES, 30th JUNE, 1921.

Exchanges or Networks with Subscribers' Lines Connected, as shewn hereunder.	Radius of Network with Main Exchange as Centre.	Annual Ground Rent, within Two-mile Radius. For an Exclusive Service.	For each Subscriber or Instrument on a Two-party Service.	For each Subscriber or Instrument on a Three or more party Service.
	Miles.	£ s. d.	£ s. d.	£ s. d.
From 1 to 300	5	3 0 0	2 10 0	2 0 0
,, 301 to 600	5	3 5 0	2 10 0	2 0 0
,, 601 to 1,500	5	4 7 6	3 7 6	2 15 0
,, 1,501 to 4,000 ..	10	4 12 6	3 15 0	3 2 6
4,001 and upwards ..	10	5 0 0	3 15 0	3 2 6

It is provided that for each effective call originating from a subscriber's instrument the charge shall be one penny in respect of exchanges or networks with 600 subscribers or less, and one penny farthing in respect of exchanges or networks with more than 600 subscribers.

3. Particulars of Telephone Services.—On 30th June, 1920, there were in the Commonwealth 172,106 telephone lines connected to 2,323 exchanges, as compared with 157,314 lines connected to 2,256 exchanges a year previously. The following tables shew the mileage of lines, etc., for telephone purposes, shewing trunk lines separately, on 30th June, 1919 and 1920:—

MILEAGE OF LINES, ETC., FOR TELEPHONE PURPOSES (EXCLUSIVE OF TRUNK LINES), 30th JUNE, 1919 AND 1920.

Particulars.		1919.	1920.
Conduits	duct miles	2,456	2,489
Conductors in aerial cables	loop mileage	38,543	38,421
Conductors in underground cables ..	,,	204,885	211,513
Conductors in cables for junction circuits	,,	24,835	32,864
Open conductors	single wire mileage	179,941	187,744

MILEAGE OF WIRES, TELEPHONE TRUNK LINES, 1919 AND 1920.

Particulars.	1919.	1920.
	Miles.	Miles.
Telephone trunk lines only	25,076	25,295
Telegraph and telephone purposes	78,004	79,930

Particulars relating to the telephone service in each State will be found in the following table :—

PARTICULARS OF TELEPHONE SERVICE, 1918, 1919, AND 1920.

Particulars.	Year (30th June.)	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Total C'wealth.
No. of Exchanges ..	1918	825	662	270	196	111	114	2,178
	1919	853	684	285	203	112	119	2,256
	1920	873	697	292	206	115	140	2,323
No. of lines connected ..	1918	62,123	40,754	19,923	11,598	8,574	4,450	147,422
	1919	65,734	44,035	21,146	12,619	9,026	4,754	157,314
	1920	70,700	49,017	22,803	14,319	9,905	5,362	172,106
No. of instruments connected	1918	78,886	55,839	24,421	15,780	10,995	5,454	191,375
	1919	84,118	60,376	26,152	17,189	11,599	5,838	205,272
	1920	91,117	66,211	28,161	19,273	12,671	6,567	224,000
No. of subscribers' instruments	1918	75,793	53,320	23,216	15,125	10,338	5,272	183,064
	1919	80,996	57,811	24,910	16,514	11,008	5,659	196,898
	1920	88,015	64,479	26,953	18,545	12,081	6,232	216,305
No. of public telephones ..	1918	1,521	1,321	793	421	329	74	4,459
	1919	1,558	1,369	822	437	337	75	4,597
	1920	1,606	1,376	800	440	343	234	4,799
No. of other local instruments	1918	1,572	1,198	412	234	328	108	3,852
	1919	1,564	1,197	420	238	254	104	3,777
	1920	1,496	356	408	288	247	101	2,896
Instruments per 100 of population	1918	4.2	3.9	3.5	3.6	3.5	2.7	3.9
	1919	4.4	4.1	3.7	3.8	3.6	2.8	4.1
	1920	4.7	4.4	3.9	4.1	3.8	3.0	4.3
		£	£	£	£	£	£	£
Earnings	1918	715,566	479,684	257,226	152,496	99,905	47,692	1,752,569
	1919	777,859	526,411	276,616	171,843	108,010	54,144	1,913,883
	1920	868,049	599,960	306,860	202,829	125,630	64,741	2,168,069
Working expenses ..	1918	536,741	330,587	168,238	99,987	98,648	40,853	1,275,054
	1919	578,304	335,977	177,805	96,548	95,208	40,796	1,324,638
	1920	635,600	375,034	190 900	119,477	101,892	46,251	1,469,154
		%	%	%	%	%	%	%
Percentage of working expenses to earnings	1918	75.01	68.92	65.40	65.57	98.74	85.66	72.75
	1919	74.35	63.82	64.51	56.18	88.15	75.35	69.21
	1920	73.22	62.51	62.21	58.91	81.10	71.44	67.76

The subjoined table gives the number of subscribers' lines and the daily calling rate at Central, Suburban, and Country telephone exchanges in the several States for the year 1919–20. A comparison of the daily calling rates for each class of exchange shews New South Wales to have registered the greatest number per line at central exchanges, Western Australia at suburban exchanges, and Queensland at country exchanges. Taking the figures for the Commonwealth, it will be observed that the average number of calls per line at central exchanges was slightly more than double the number registered at suburban exchanges, while the average for suburban exchanges was slightly less than double the number shewn for country exchanges.

NUMBER OF SUBSCRIBERS' LINES AND DAILY CALLING RATE AT TELEPHONE EXCHANGES, 1919–1920.

State.	Central Exchanges.		Suburban Exchanges.		Country Exchanges.		Total.	
	Subscribers' Lines.	Average Outward Calls Daily per line.	Subscribers' Lines.	Average Outward Calls Daily per line.	Subscribers' Lines.	Average Outward Calls Daily per line.	Subscribers' Lines.	Average Outward Calls Daily per line.
New South Wales	10,304	10.3	31,232	4.2	26,495	2.1	68,031	4.3
Victoria ..	11,621	7.8	20,045	3.8	15,153	1.6	46,819	4.1
Queensland ..	6,047	8.0	2,966	3.4	13,050	2.7	22,063	4.3
South Australia	5,629	9.2	4,575	4.8	3,708	2.4	13,912	5.9
Western Australia	3,697	6.4	2,185	4.9	3,501	2.2	9,383	4.5
Tasmania ..	2,067	5.6	251	2.4	3,044	1.8	5,362	3.3
Commonwealth	39,365	8.4	61,254	4.1	64,951	2.1	165,570	4.3

In the following table the number of Telephone Trunk Line Calls recorded, the amount of revenue received, and the average revenue per call are shewn for each of the States for the years 1917–18 to 1919–20 :—

TRUNK LINE CALLS AND REVENUE FOR THE YEARS 1917–18 TO 1919–20.

Particulars.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
Total Calls for Year—	No.	No.	No.	No.	No.	No.	No.
1917–18 ..	4,007,208	2,445,245	1,696,096	719,930	351,400	454,294	9,674,173
1918–19 ..	4,484,816	2,797,346	1,861,431	863,517	418,984	557,002	11,003,096
1919–20 ..	4,898,098	3,200,528	2,050,209	1,092,516	489,905	688,949	12,420,205
Total Revenue for Year—	£	£	£	£	£	£	£
1917–18 ..	133,453	88,416	78,535	31,374	14,827	14,618	361,223
1918–19 ..	155,345	100,335	87,273	39,694	17,873	18,567	419,087
1919–20 ..	172,200	116,262	97,983	49,444	22,724	23,241	481,854
Average Revenue per Call—	Pence.	Pence.	Pence.	Pence.	Pence.	Pence.	Pence.
1917–18 ..	7·99	8·68	11·11	10·48	10·13	7·72	8·97
1918–19 ..	8·32	8·61	11·25	10·78	10·24	8·00	9·14
1919–20 ..	8·44	8·72	11·47	10·86	11·13	8·10	9·31

SECTION XIX.

COMMONWEALTH FINANCE.

§ 1. General.

1. **Financial Provisions of the Constitution.**—The main provisions of the Constitution relating to the initiation and development of the financial system of the Commonwealth are those contained in Chapter IV., " Finance and Trade," being sections 81 to 105 of the Constitution Act. Two other sections which have a most important bearing on questions of Commonwealth finance are sections 69 and 51.

Section 69 provided for certain departments which were transferable under the Constitution. Section 51 referred to other departments which it would be necessary to create under the Constitution. Section 87 dealt with the financial relations between the Commonwealth and the States. All of these matters have been treated in detail in previous issues of the Official Year Book up to and including No. 12, and no further reference to them will be made here.

2. **Accounts of Commonwealth Government.**—The Commonwealth Government, like the States Governments, operates nearly all its accounts by means of three funds: the Consolidated Revenue Fund, the Trust Fund, and the Loan Fund. The latter only came into existence in the financial year 1911–12, but on the outbreak of war became so important that it is now treated in two parts: a General Loan Fund mainly for purposes of Public Works, and a War Loan Fund for purely military purposes. The accounts of these funds are now so interwoven that a proper conspectus of the Commonwealth Accounts can hardly be obtained by an analysis of each of them singly. Two tables are therefore appended, shewing receipts and disbursements from all sources for the last five years. The different funds will then be treated in detail in the subsequent sections.

COMMONWEALTH RECEIPTS, 1915–16 TO 1919–20.

Heading.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
Consolidated Revenue	30,762,216	34,067,434	36,839,868	44,716,918	52,783,102
Trust Funds in aid of Revenue ..	..	3,000,000	2,077,427	3,925,820	3,523,057
Total	30,762,216	37,067,434	38,917,295	48,642,738	56,306,159
General Loan Fund	2,859,341	..	1,803,447	1,429,891	1,286,786
Total	2,859,341	..	1,803,447	1,429,891	1,286,786
War Loan Fund	57,656,683	50,611,810	60,865,195	57,637,507	27,125,203
Unexpended Balance from previous years	..	20,233,115	17,730,688	23,500,774	18,945,392
Total	57,656,683	70,844,925	78,595,883	81,138,281	46,070,595
Grand Total	**91,278,240**	**107,912,359**	**119,316,625**	**131,210,910**	**103,663,540**

COMMONWEALTH EXPENDITURE, 1915–16 TO 1919–20.

Heading.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
Expenditure from Consolidated Revenue	21,415,221	(a)25,719,588	26,578,674	34,788,107	40,337,804
Balance paid into Trust Funds ..	3,000,000	2,077,427	3,925,820	3,470,478	5,724,806
Expenditure from Trust Funds ..	..	3,000,000	2,077,427	3,879,241	3,523,057
Subsidy to States	6,346,995	6,270,419	6,340,374	6,454,333	6,720,492
Unexpended Balance from Trust Funds	..	..	..	48,579	..
Total	30,762,216	37,067,434	38,917,295	48,642,738	56,306,159
General Loan Fund Expenditure ..	2,859,341	..	1,803,447	1,420,891	1,286,786
Total	2,859,341	..	1,803,447	1,420,891	1,286,786
War Expenditure from War Loan Fund	37,423,568	53,114,237	55,095,109	62,192,889	46,070,595
Unexpended *Balance* from War Loan Fund	20,233,115	17,730,688	23,500,774	18,945,302	..
Total	57,656,683	70,844,925	78,595,883	81,138,281	46,070,595
Grand Total	91,278,240	107,912,359	119,316,625	131,210,910	103,663,540

(*a*) Includes £371,118 repayment of advance from Notes Fund in 1914–15.

§ 2. Consolidated Revenue Fund.

(A) Nature of Fund.

The provisions made for the formation of a Commonwealth Consolidated Revenue Fund, and the means to be adopted for operating on that fund, are contained in sections 81, 82, and 83 *of the Constitution. In section 81 it is provided that* "*All revenues or* moneys raised or received by the Executive Government of the Commonwealth shall form one Consolidated Revenue Fund, to be appropriated for the purposes of the Commonwealth in the manner and subject to the charges and liabilities imposed by this Constitution." A strictly literal interpretation of this section would appear to require all loan and trust moneys received by the Commonwealth Executive to be paid to Consolidated Revenue. It is, however, held by Quick and Garran, in their "Annotated Constitution," that the "generic word *moneys* must be controlled by the preceding specific word *revenues*, and limited to moneys in the nature of revenue." This is the view of the matter which has been adopted by the Commonwealth Treasury in the preparation of its accounts. At present certain moneys received by the Commonwealth, which are not of the nature of revenue, are paid to Trust Account, and other moneys are paid to Loan Account. As regards expenditure from the Consolidated Revenue Fund, section 82 provides that the costs, charges, and expenses incident to the collection, management, and receipt of the Consolidated Revenue Fund should form the first charge thereon, while section 83 stipulates that "no money shall be drawn from the Treasury of the Commonwealth except under appropriation made by law." Such appropriations are either special, and as such are provided for by means of a permanent Act, or annual, and provided for in an annual Appropriation Act.

(B) Revenue.

1. **Total Collections.**—The consolidated revenue of the Commonwealth, which in 1901–2, the first complete financial year under the new *régime*, amounted to £11,296,985, had, in 1919–20, reached a total of £52,783,102, an increase in the period of £41,486,117.

Particulars concerning the total amount of revenue collected by the Commonwealth Government from 1st July, 1915, to 30th June, 1920, are contained in the following table :—

CONSOLIDATED REVENUE OF THE COMMONWEALTH, 1915-16 TO 1919-20.

—	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
Commonwealth	30,762,216	34,067,434	36,839,868	44,716,918	52,783,102

The great increase in recent years is due to the large expansion in direct taxation, which will be dealt with in detail in a later subsection.

2. **Collections per Head.**—In the table given hereunder particulars are furnished of the amount of revenue per head of population collected in respect of the Commonwealth for the last six years :—

COMMONWEALTH REVENUE PER HEAD OF POPULATION, 1915-16 TO 1919-20.

Source of Revenue.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Taxation	4 15 5	5 0 7	4 19 9	6 10 8	7 19 6
Public Works and Services ..	1 4 4	1 9 0	1 18 5	1 16 5	1 8 10
Other Receipts	0 5 0	0 10 2	0 11 1	0 10 8	0 12 10
Total	6 4 9	6 19 9	7 9 3	8 17 9	10 1 2

3. **Sources of Revenue.**—The following table furnishes detailed particulars concerning the Commonwealth revenue derived from each source during the years 1915-16 to 1919-20 :—

SOURCES OF COMMONWEALTH REVENUE, 1915-16 TO 1919-20.

Source of Revenue.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
Taxation—	£	£	£	£	£
Customs	13,610,684	12,373,664	9,486,555	11,605,410	13,705,220
Excise	3,323,419	3,236,623	3,737,757	5,821,560	7,869,339
Land Tax	2,040,436	2,121,952	2,123,779	2,109,171	2,110,306
Probate Duties	626,215	1,062,168	947,232	923,908	1,441,819
Income Tax	3,932,775	5,621,950	7,385,514	10,376,456	12,848,123
Entertainments Tax	..	110,683	245,898	358,126	557,911
War Time Profits Tax	..	..	680,008	1,206,538	2,569,012
War Postage	..	..	..	463,317	745,962
Total	23,533,529	24,527,040	24,606,743	32,864,486	41,847,692
Public Works and Services—					
Postal	5,063,596	5,498,517	5,762,190	6,110,522	6,744,755
Railways	304,068	305,964	201,107	196,988	265,918
Commonwealth Steamers	..	..	880,000	1,015,762	..
Detained Enemy Vessels	646,219	1,272,621	2,173,418	1,671,905	344,411
Other	..	..	468,769	156,321	218,209
Total	6,003,883	7,077,102	9,485,484	9,151,498	7,573,293
Other Revenue—					
Interest, Discount, etc.	191,395	665,655	995,576	1,479,426	1,589,347
Coinage	359,720	354,276	229,378	125,634	76,439
Defence	234,896	478,326	663,804	262,786	183,227
Quarantine	19,242	19,671	16,453	44,118	62,053
Territories (a)	54,156	70,333	71,053	97,873	65,206
Patents, etc.	20,662	20,599	20,292	23,623	34,067
Lighthouses	123,945	99,830	108,556	125,231	153,992
Pension Contributions	50,447	50,474	51,396	51,763	57,642
Defence Trust Account	85,854	..	250,310	185,062	270,504
Unexpended Balances of London Orders	..	..	186,149	185,746	708,264
Miscellaneous	84,487	504,126	134,684	119,652	161,376
Total	1,224,804	2,463,292	2,747,641	2,700,934	3,362,117
Grand Total	30,762,216	34,067,434	36,839,868	44,716,918	52,783,102

(a) Exclusive of Railways, and other items which appear elsewhere under their appropriate headings.

In addition to the new direct taxation, there was for some time a fairly steady return from Customs and Excise. In the two years 1916–8, however, there was a striking fall in the Customs returns, due probably to the diminution of imports caused by a scarcity of tonnage. A marked improvement was manifested in 1919-20. The postal receipts have shewn a consistent upward tendency, and there has been also a large addition to the revenue in recent years by the operations of the Commonwealth steamers, detained enemy vessels, and other activities.

The principal items composing the revenue are discussed in greater detail hereunder.

4. Customs Revenue for Past Five Years.—Particulars for the Commonwealth as a whole, *for the five years 1915–16 to 1919–20, are furnished in the following table* :—

COMMONWEALTH CUSTOMS REVENUE, 1915–16 TO 1919–20.

Classes.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
Stimulants	2,500,606	1,996,321	1,693,957	1,455,667	1,880,531
Narcotics	1,333,516	1,300,683	1,236,085	1,268,357	1,590,450
Sugar	587,028	453,380	51,119	107,965	*a*7,229
Agricultural products	1,310,437	862,227	603,605	515,236	726,360
Apparel and textiles	2,902,012	3,197,778	2,393,518	3,422,371	3,444,292
Metals and machinery	1,572,536	1,404,705	1,000,943	1,603,767	2,165,221
Oils, paints, etc.	386,994	338,202	267,129	319,043	311,022
Earthenware, etc.	368,300	249,525	176,244	248,664	280,064
Drugs and chemicals	160,997	163,027	163,623	219,532	289,437
Wood, wicker and cane ..	365,969	277,396	203,430	214,715	274,500
Jewellery, etc.	335,147	325,718	279,785	334,986	413,134
Leather, etc.	505,652	498,874	346,073	466,589	576,106
Paper and stationery	346,158	419,323	299,330	506,662	467,623
Vehicles	499,140	429,077	322,344	337,334	625,498
Musical instruments	100,562	107,915	110,413	110,850	142,082
Miscellaneous articles	295,895	320,334	298,661	425,349	477,612
Other receipts	39,735	39,179	40,296	48,323	48,517
Total Customs	13,610,684	12,373,664	9,486,555	11,605,410	13,705,220

(*a*) Debit.

It will be seen that during the period here dealt with, the Customs revenue from stimulants and narcotics has represented a proportion of the total varying *approximately from one-fourth to one-third. The other principal articles from* which Customs revenue was derived were "apparel and textiles," "metals and machinery," and "agricultural products." The smaller revenue from Customs duties in 1917–18 was due to the restriction of imports in consequence of the shortage of ships.

5. Excise Collections, 1915–16 to 1919–20.—Particulars concerning the amount of Excise collected under each head during each of the years ending 30th June, 1916 to 1920, are given hereunder :—

COMMONWEALTH EXCISE REVENUE, 1915–16 TO 1919–20.

Particulars.	1915–16.	1916–17.	1917–18.	1918–19.	1991–20.
	£	£	£	£	£
Beer	1,485,543	1,387,115	1,703,888	2,862,760	3,702,442
Spirits	627,431	670,768	804,476	1,098,440	1,609,065
Sugar	(*a*)170	..	..	..	..
Tobacco	1,204,556	1,172,787	1,223,792	1,847,661	2,545,214
Licenses	6,059	5,953	5,601	12,699	4,681
Total Excise ..	3,323,419	3,236,623	3,737,757	5,821,560	7,869,339(*b*)

(*a*) Debit. (*b*) Including £7,937 "Other."

Comparing the Excise collections for 1919–20 with those for 1915–16, it will be seen that the revenue from beer, spirits, and tobacco, the most important items, has much more than doubled in the period under review. The large increase in every item in the last two years is due to the operation of increased excise duties which came into force on 25th September, 1918.

6. Commonwealth Direct Taxation.—(*a*) *General.* Under section 51, sub-section (ii) of the Constitution, power is given to the Commonwealth Parliament to make laws with respect to taxation, but so as not to discriminate between States or parts of States. Section 90 of the Constitution makes the power of the Commonwealth Parliament to impose Customs and Excise duties an exclusive one, but it would appear that as regards all other forms of taxation the States and Commonwealth possess concurrent powers. The question of the imposition by the Commonwealth Parliament of direct taxes such as land and income taxes is one which has been the subject of considerable discussion, and the opinion has been expressed that the intention of the framers of the Constitution was that of restricting the powers of taxation of the Commonwealth to the imposition of Customs and Excise duties except in case of great national peril. Whatever the intention of the framers may have been in this matter, the Constitution itself expresses no such limitation, and consequently the Commonwealth Parliament is unfettered in the imposition of taxation. Up to the end of the financial year 1909–10 the only taxes so levied were those of Customs and Excise, treated in detail in the foregoing paragraphs. During the 1910 session of the Federal Parliament, however, an Act—assented to on 17th November, 1910—was passed, giving to the Commonwealth the power of levying a tax upon the unimproved value of all lands within the Commonwealth not specially exempted. Detailed reference to this Act will be found in Commonwealth Year Books Nos. 5 and 6. A conspectus relating to land taxation will be found at the end of *Section XX.*

(*b*) *Budget of 1914–15.* The fact stated in the previous paragraph, that there was nothing in the Constitution itself to restrain the Federal Government from entering the field of direct taxation, received further exemplification by the Budget of 1914–15. The outbreak of war then made it necessary for the Commonwealth Government to exercise full powers in the matter of direct taxation. In the first place the Land Tax was raised by altering the graduation so that the increase in rate over the whole taxable value of the estate, for each succeeding pound of taxable value between £5,000 and £75,000, was one eighteen-thousand seven-hundred and fiftieth of a penny, instead of one thirty-thousandth of a penny, as hitherto. The maximum rate for resident owners became 9d. in the £ on estates whose taxable value was more than £75,000. Corresponding increases in the rates payable by absentee owners were made, rising to a maximum of 10d. in the £ on estates whose taxable value is more than £80,000. The Act No. 30 of 1918 increased the existing rates of land tax by 20 per cent. In addition to this substantial increase in an already existing tax, the Federal Government, for the first time, introduced Succession Duties on estates of deceased persons, in addition to those already imposed by the State Governments. The Commonwealth scale of succession duty, exempting all estates of less than £1,000 net value, ranges from a minimum of 1 per cent. to a maximum of 15 per cent. on estates of a higher taxable value than £71,000, the rate of duty going up ⅕ per cent. for every increase of £1,000 in the taxable estate. The respective collections in the several States are given in the accompanying table.

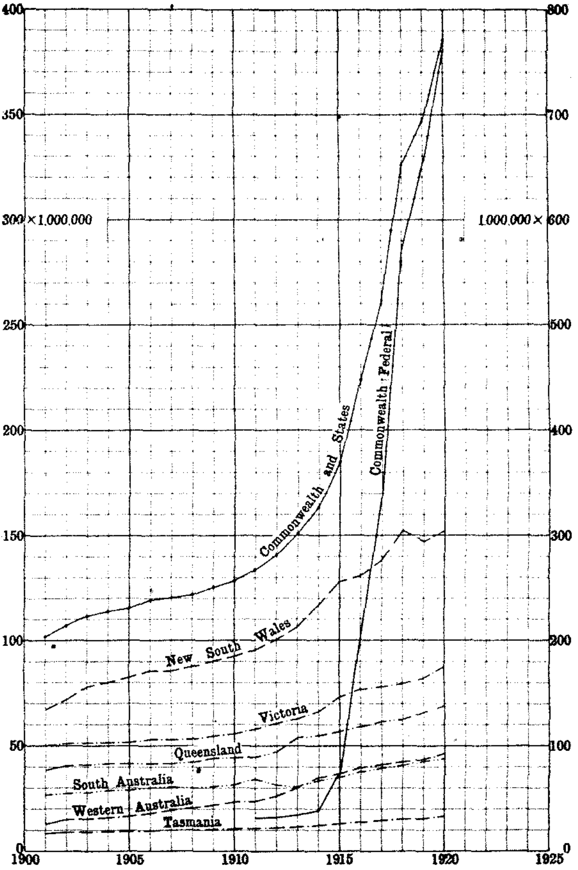
COMMONWEALTH PROBATE AND SUCCESSION DUTIES, COLLECTED IN EACH STATE, 1915–16 TO 1919–20.

Year.	N.S.W.	Vic. (*c*)	Q'land.	S. Aust.	W. Aust.	Tas.	Total.
	£	£	£	£	£	£	£
1915–16 ..	261,477	276,923	23,928	32,790(*a*)	8,530	22,567	626,215
1916–17 ..	306,249	588,125	61,239	65,130	30,064	11,361	1,062,168
1917–18 ..	338,006	448,225	55,181	69,737	18,616	17,467	947,232
1918–19 ..	307,499	377,872	56,909	131,488(*b*)	28,638	21,502	923,908
1919–20 ..	399,896	700,629	60,670	144,077(*d*)	99,826	36,720	1,441,818

(*a*) Including Northern Territory, £164. (*b*) Including Northern Territory, £1,280.
(*c*) Including Central Office. (*d*) Including Northern Territory.

In this table and the corresponding ones dealing with Land Tax, Income Tax, and War Time Profits Tax, it must be noted that the amount received in Victoria includes that collected on behalf of the Central Office, which deals with taxpayers who own property in more than one State.

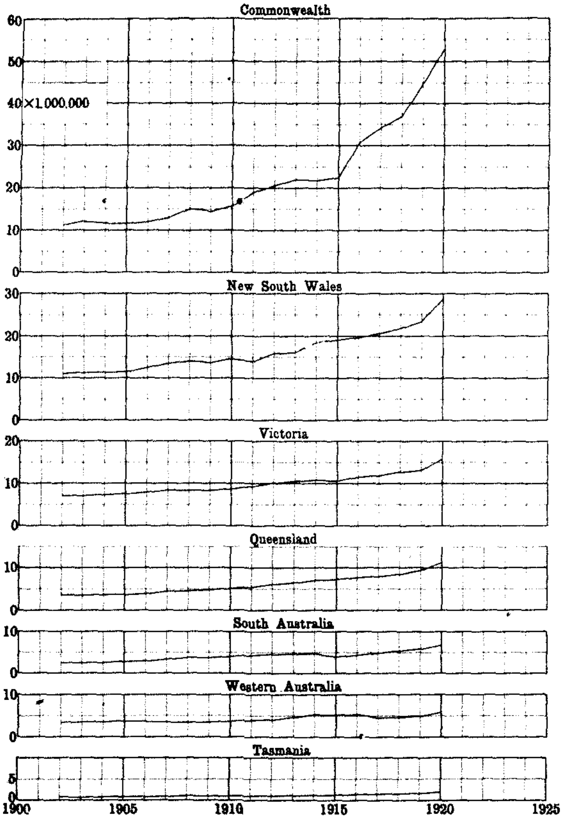
AUSTRALIAN PUBLIC DEBT—COMMONWEALTH AND STATES, 1900-1 TO 1919-20.



See pp. 697, 716.

Explanation of Graphs.—The base of each small square represents an interval of one year, while the vertical height represents £10,000,000 in the case of the Commonwealth (Federal) and States Debts the scale for which is on the left hand side, and £20,000,000 for Commonwealth and States combined the scale for which is on the right hand. The Commonwealth (Federal) debt commenced in the year 1911.

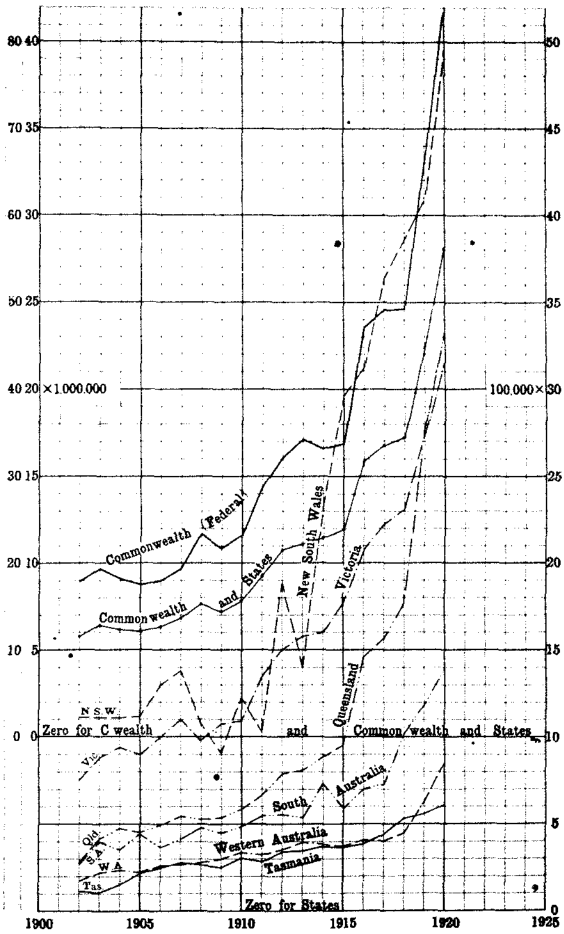
AUSTRALIAN CONSOLIDATED REVENUE—COMMONWEALTH AND STATES, 1901-2 TO 1919-20.



See pp. 668, 702.

EXPLANATION OF GRAPHS.—*The base of each small square represents an interval of one year, while the vertical height represents £5,000,000. The zero lines in each case are marked thus "0."*

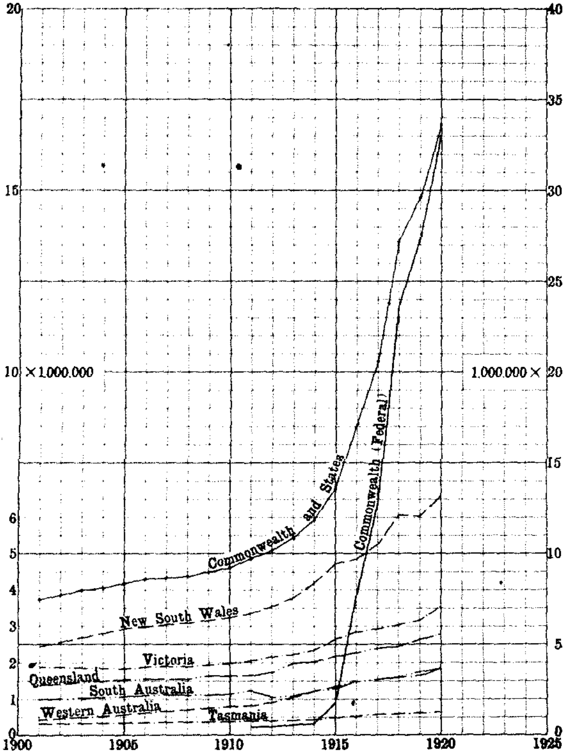
TAXATION.—COMMONWEALTH AND STATES, 1901-2 TO 1919-20.



See pp. 668, 704.

EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year. Of the two scales on the left hand the outer one is that for the Commonwealth and States combined, the vertical height of each square representing £2,000,000 and the inner one that for the Commonwealth (Federal), the vertical height representing £1,000,000. *The scale on the right hand is that for the States and the vertical height of each small square represents £100,000.*

INTEREST ON PUBLIC DEBT, COMMONWEALTH AND STATES, 1900-1 TO 1919-20.



EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year, while the vertical height represents £500,000 in the case of the Commonwealth (Federal) and States, the scale for which is on the left hand side and £1,000,000 in the case of the Commonwealth and States combined for which the scale is on the right hand side.

(c) *Commonwealth Income Tax.* The first Commonwealth Income Tax was levied during the financial year 1915–16. The legislation on the subject comprised the *Income Tax Assessment Act No. 34 of 1915, as amended by the Income Tax Assessment* Acts Nos. 47 of 1915, 37 of 1916, 39 of 1916 and 18 of 1918. Full details as to the original Acts are to be found in Commonwealth Official Year Book No. 9. The rates are fixed for one year only, and in each financial year an Income Tax Act fixing the rate for that year is passed. Various estimates as to the probable yield in the first year were made, varying from £3,000,000 to £4,000,000, and the confidence of those who quoted the higher amount was justified by the result. The increased amounts collected in subsequent years are due to increases in the rates. The result of the first five years' collections was as follows :—

COMMONWEALTH INCOME TAX COLLECTIONS IN EACH STATE, 1915–16 TO 1919–20.

States.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20
	£	£	£	£	£
New South Wales ..	1,462,418	1,670,829	2,543,427	3,674,633	4,291,947
Victoria (a) ..	1,476,690	2,547,222	2,847,448	3,966,820	5,325,008
Queensland ..	497,059	545,475	795,717	1,206,051	1,446,503
South Australia ..	245,063	433,446	612,225	803,950	906,837
Western Australia	185,003	314,374	433,703	487,842	558,026
Tasmania ..	66,183	108,837	149,947	234,066	318,051
Northern Territory	359	1,767	3,047	3,085	1,757
Total..	3,932,775	5,621,950	7,385,514	10,376,456	12,848,124

(a) Including Central Office.

(d) *Entertainments Tax.* The rate of Entertainments Tax, according to Amending Act No. 11 of 1919, is as follows :—For tickets of 6d. and less, ½d. ; exceeding 6d. but not exceeding 1s., 1d.; exceeding 1s., 1d. for the first shilling, and ½d. for every subsequent sixpence or part of sixpence. The collections for the first four years are as follows :—

ENTERTAINMENTS TAX : COLLECTIONS IN EACH STATE, 1916–17 TO 1919–20.

State.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£
New South Wales	48,990	107,033	136,932	234,327
Victoria	32,947	72,209	110,815	176,411
Queensland	12,730	30,086	45,930	62,671
South Australia	8,016	18,430	27,534	38,990
Western Australia	4,954	11,879	27,934	34,210
Tasmania	2,992	5,988	8,680	10,993
Northern Territory	54	273	301	309
Total	110,683	245,898	358,126	557,911

(e) *War Time Profits Tax.* This tax came into force on 22nd September, 1917. It provides for a tax on the amount by which the profits made in the war-time financial year (1st July to 30th June following), exceeds the pre-war standard of profits, which may be either :—(a) the average profits of two of the three years before 4th August, 1914, or (b) 10 per cent. on the capital employed in a business. The tax in respect of profits derived in the financial year 1st July, 1915, to 30th June, 1916, was 50 per cent., and in all subsequent years 75 per cent. The collections for the first three years are given in the accompanying table. The original section 2 of the War Time Profits Tax Assessment Act stated that this Act would apply to the profits of any business arising up to 30th

June next after the Declaration of Peace in connexion with the late war. Subsequent to the signing of the armistice, on 11th November, 1918, the section was amended to accord with that intention, and thus fixed the final application of the Act to profits arising during the year ended 30th June, 1919.

WAR TIME PROFITS TAX : COLLECTIONS IN EACH STATE, 1917–20.

State.	1917–18.	1918–19.	1919–20.
	£	£	£
New South Wales	147,285	524,658	880,442
Victoria (a)	371,969	364,572	1,066,161
Queensland	33,526	125,329	230,283
South Australia	67,795	137,641	243,527
Western Australia	43,323	15,940	105,517
Tasmania	16,110	38,398	43,083
Total	680,008	1,206,538	2,569,013

(a) Including Central Office.

(f) *War Postage.* This was a new source of revenue derived from an additional halfpenny rate imposed on postages from the 28th October, 1918. The amount credited to "War Postage" is the excess over the normal increase of revenue from postage. The amount collected for the balance of the financial year 1918–19 was £463,317, and in 1919–20 it was £745,962. [For further reference see page 633.]

(g) *Commonwealth Land Tax.*—Particulars as to the Land Tax assessment for each State for the year ending 30th June, 1918, the latest available return at the time of writing, will be found in the following table. Details in regard to rate of tax, etc., will be found at the end of Section XX.

PARTICULARS OF LAND TAX ASSESSMENT FOR EACH STATE OF THE COMMONWEALTH FOR THE YEAR ENDING 30th JUNE, 1918.

State.	Number of Taxable Returns.	Unimproved Value as ascertained by Department.	Tax Assessed.		
			Town.	Country.	Total.
		£	£	£	£
Central—					
Resident	1,475	36,090,168	286,288	379,939	666,227
Absentee	209	560,758	5,162	3,098	8,260
	1,684	36,650,926	291,450	383,037	674,487
New South Wales—					
Resident	4,735	71,125,902	248,864	430,206	679,070
Absentee	639	1,306,714	10,778	5,025	15,803
	5,374	72,432,616	259,642	435,231	694,873
Victoria—					
Resident	4,277	46,875,824	103,682	183,357	287,039
Absentee	691	1,094,878	10,567	3,661	14,228
	4,968	47,970,702	114,249	187,018	301,267

PARTICULARS OF LAND TAX ASSESSMENT FOR EACH STATE OF THE COMMONWEALTH FOR THE YEAR ENDING 30TH JUNE, 1918—*continued.*

State.	Number of Taxable Returns.	Unimproved Value as ascertained by Department.	Tax Assessed.		
			Town.	Country.	Total.
		£	£	£	£
Queensland—					
Resident	1,075	13,018,143	26,987	65,079	92,066
Absentee	270	349,376	1,453	2,031	3,484
	1,345	13,367,519	28,440	67,110	95,550
South Australia—					
Resident	1,594	17,093,650	44,952	73,154	118,106
Absentee	312	300,544	2,039	1,296	3,335
	1,906	17,394,194	46,991	74,450	121,441
Western Australia—					
Resident	545	6,462,642	23,064	23,667	46,731
Absentee	1,035	413,548	2,029	900	2,929
	1,580	6,876,190	25,093	24,567	49,660
Tasmania—					
Resident	448	5,091,749	7,819	24,404	32,223
Absentee	323	257,561	476	891	1,367
	771	5,349,310	8,295	25,295	33,590
Grand Total—					
Resident	14,149	195,758,078	741,656	1,179,806	1,921,462
Absentee	3,479	4,283,379	32,504	16,902	49,406
	17,628	200,041,457	774,160	1,196,708	1,970,868

The foregoing table relates to the assessments for the latest year in regard to which figures are available. In addition to this, a further table is appended shewing the actual amounts received by the Treasury for five years. The yield of the tax has been remarkably constant since 1915–16.

COMMONWEALTH LAND TAX COLLECTIONS IN EACH STATE, 1915–16 TO 1919–20.

State.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
New South Wales	925,055	921,974	889,164	822,880	955,935
Victoria (*a*)	760,205	822,946	844,872	885,064	818,769
Queensland	100,588	143,317	149,989	141,121	112,064
South Australia	154,689	150,670	145,852	153,789	118,318
Western Australia	61,485	47,365	58,743	64,378	60,613
Tasmania	38,414	35,660	35,159	41,918	44,607
Total	2,040,436	2,121,952	2,123,779	2,109,170	2,110,306

(*a*) Including Central Office.

A conspectus of Commonwealth and State Acts dealing with taxation will be found at the end of Section XX.

7. **Details of Postal Revenue, 1915-16 to 1919-20.**—Particulars concerning the postal revenue of the Commonwealth for each of the financial years from 1915-16 to 1919-20 are contained in the following table:—

COMMONWEALTH POSTAL REVENUE, 1915-16 TO 1919-20.

Particulars.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
Private boxes and bags ..	30,743	33,239	34,926	35,672	37,188
Commission—					
Money orders and postal notes	137,355	127,775	129,651	133,955	147,175
Telegraphs	893,904	950,842	1,032,318	1,103,664	1,274,527
Telephones	1,220,855	1,549,961	1,731,149	1,876,928	2,159,449
Postage	2,525,873	2,614,542	2,625,262	2,726,524	2,874,730
Miscellaneous	244,866	222,158	208,884	233,779	251,686
Total	5,053,596	5,498,517	5,762,190	6,110,522	6,744,755

The item "Miscellaneous" includes a subsidy from the Commonwealth Bank for the conduct of Savings Bank business, the mail transit rates, and certain allowances.

8. **Railways.** The Commonwealth Government is now responsible for four lines, the Kalgoorlie–Port Augusta, the Port Augusta–Oodnadatta, the Darwin–Katherine River, and the Capital Territory lines. The appended table shews the amounts paid into the credit of the Consolidated Revenue Fund on account of each of these railways for the past five years. In the case of the Port Augusta–Oodnadatta Railway the amount is made up by fees, wharfage rates, etc. Under an arrangement which came into effect on 1st January, 1914, this line is worked by the South Australian Government, and the Commonwealth Government is to receive the profit, if any, on the working, or to pay the deficiency. Since 1914 there has always been a deficiency, which is met by a payment from the Commonwealth Government, and debited to the Northern Territory Account.

COMMONWEALTH REVENUE FROM RAILWAYS, 1915-16 TO 1919-20.

Railway.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
Kalgoorlie–Port Augusta	271,510	271,388	164,203	150,856	233,564
Port Augusta–Oodnadatta	2,368	1,379	1,027	..	..
Darwin–Katherine River	29,150	32,605	35,172	45,725	31,783
Capital Territory	1,040	592	705	407	571
Total	304,068	305,964	201,107	196,988	265,918

It will be noticed that there was a substantial fall in the receipts of the Kalgoorlie–Port Augusta Railway in 1917–18, due to the reduction in freight receipts. In 1915–16 and 1916–17 large amounts were credited to working receipts for the carriage of constructional material. The completion of the line in 1917–18 closed this source of revenue.

9. **Commonwealth Steamships.** The Commonwealth Government announced, about the end of June, 1916, that, owing to the difficulty of obtaining tonnage, and to increasing freight charges, it had purchased fifteen steamers to insure to producers, as far as possible, the transport of their produce. The price given was rather more than £2,000,000, the capital cost brought forward from 30th June, 1917, being £2,080,656. The profits for the year 1916–17 amounted to £327,336, and for the year 1917–18 to £576,164, a total

of £903,500. Out of this amount the sum of £880,000 was transferred from the Trust Account to Consolidated Revenue in 1917–18, under the approval of the Treasurer. The Consolidated Revenue benefited further in 1918–19, the surplus earnings being £1,015,702. In 1919–20 there was not a sufficient balance in the Trust Account to allow of a transfer to Consolidated Revenue, these transfers being taken from Cash Balances and not from Revenue Account Balances, as disclosed by the Profit and Loss and Balance-sheet Statements of the line.

10. **Detained Enemy Vessels.** This is an item which first appeared in the Commonwealth accounts in 1914–15. For the first two years it appeared in the receipts of the Navy, but since 1916–17 it has ranked as a separate account. The great increases in 1916–17 and 1917–18 are due to higher freight charges, while the fall in 1918–19 is due to the fact that gross receipts were paid into the Consolidated Revenue in 1917–18, and net receipts in 1918–19.

11. **Other Public Works and Services.**—The most important items in 1917–18 were "Profit on sale of rabbit skins" £301,000, and "Profit on charter of vessels" £166,790. In 1918–19 they were "Profit under Wool Tops Agreement" £141,008, and "Profit on charter of vessels" £15,000. In 1919–20 they were "Profit under Cornsacks Distribution Account," £130,472; and "Profit under Wool Tops Agreement," £78,273.

12. **Interest, Discount, etc.**—The most important investments of the Commonwealth Government from which interest is derived are—Loans to States, General Trust Funds, Loans to the London Market, Fixed Deposits with the Commonwealth and other Banks, and certain advances and overdrafts. In 1919–20, the main receipts from this source were—Interest on Loans and Advances to States, £967,538; Interest on Bank Deposits, £210,873; and Interest on General Trust Funds, £176,701.

13. **Coinage.**—The Commonwealth Revenue under this head is derived from profit on coin issued, and for 1919–20 was made up of £40,871 for silver and £35,568 for bronze. The great fall in revenue from this source during recent years is due to the unprecedented rise in the price of silver, which has reduced the profits on seignorage to a very modest figure.

14. **Defence.**—The income from this source (which is derived from both Defence and Navy Offices) is mainly derived from sales of material and stores supplied, forfeitures, fines, costs, etc. In 1919–20, £94,837 was contributed by the Defence Department, and £88,390 by the Navy Office.

15. **Patents, etc.**—This heading includes Patents, Trade Marks, Copyrights, and Designs, the administration of which has been exclusively a Commonwealth concern for a very long time. The revenue has been very regular during the period under review at a figure somewhat in excess of £20,000 annually, excepting in the last year, when a substantial advance was shewn. In 1919–20, £23,662 was obtained from Patents, and £10,405 from Trade Marks, Copyright and Designs.

16. **Unexpended Balance of London Orders.**—The largely increased amount for 1919–20 is due to an amendment by the Treasury of the London Account Regulations, which superseded the system of charging votes upon the remittance of amounts from the Commonwealth, and made such charge only when payment in London is actually completed. This necessitated the closing of the Trust Account for London Liabilities, and the transfer of unexpended balances to the Revenue. A considerable amount was thus transferred in 1919–20, particularly on account of the Department of the Navy.

17. **Miscellaneous.**—This includes several items which are either small in themselves, or not included under separate headings as they are virtually non-recurring. Thus in 1916–17 there was a large item of £431,690 which was paid into Revenue under the operation of the Sugar Purchase Act of 1915. In 1917–18 it had fallen to £20,390, in 1918–19 to £6,547, and in 1919–20 to £10,279.

(C) Expenditure.

1. **Nature of Commonwealth Expenditure.**—The disbursements by the Commonwealth Government of the revenue collected by it fell naturally, under the "book-keeping"* system, into three classes, viz. :—

(a) Expenditure on transferred services.

(b) Expenditure on new services.

(c) Payment to States of surplus revenue.

Of these three, only the first two were actual expenditure, the last being merely a transfer, the actual expenditure being incurred by the States. In accordance with the provisions of the Constitution, the expenditure on transferred services was, under the "book-keeping" system, debited to the several States in respect of which such expenditure was incurred, while the expenditure on new services was distributed *per capita*. Surplus Commonwealth revenue was paid to the States monthly. During the earlier years of Federation, viz., until the end of the year 1903–4, new works, etc., for transferred departments were treated as transferred expenditure, and were charged to the States on whose behalf the expenditure had been incurred. In subsequent years all such expenditure was regarded as expenditure on new services, and was distributed amongst the States *per capita*. Under the new system of keeping the accounts there is no further debiting of expenditure to the several States.

2. **Total Expenditure.**—The expenditure by the Commonwealth Government during the period 1915–16 to 1919–20 is shewn in the following table :—

COMMONWEALTH EXPENDITURE, 1915–16 TO 1919–20.(a)

—	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
Commonwealth	24,415,221	27,797,015	30,499,494	38,262,585	46,062,610

(a) Including balance paid into Trust Funds, but excluding subsidies to States.

The largely increased expenditure of recent years is due partly to Old-age and Invalid Pensions, but mainly to the expenditure from Revenue upon War Services. In 1915–16 the expenditure included £3,000,000 set aside for the purposes of Pensions in subsequent years, and this item came to £2,077,427 in 1916–17, £3,925,820 in 1917–18, £3,476,478 in 1918–19, and £5,724,806 in 1919–20. These totals include amounts paid into Trust Funds, but exclude subsidy to States.

3. **Expenditure per Head.**—Particulars concerning the Commonwealth expenditure per head are furnished hereunder :—

COMMONWEALTH EXPENDITURE PER HEAD OF POPULATION, 1915–16 TO 1919–20.

—	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Commonwealth	4 19 0	5 14 0	6 3 6	7 12 1	8 15 7

4. **New Works, etc.**—As previously mentioned, the Commonwealth expenditure on new works, etc., for transferred departments was, prior to 1904–5, included under the head of "transferred" expenditure, but in that and subsequent years up to 1909–10 was

* For an exposition of the "book-keeping system" see Commonwealth Year Book No. 6, p. 780.

treated as "other" expenditure, and debited to the States *per capita*. Particulars of the expenditure on new works, etc., during the last five years are given in the following table :—

COMMONWEALTH EXPENDITURE ON NEW WORKS, 1915–16 TO 1919–20.

Year ended 30th June—	Defence.	Trade and Customs.	Postmaster-General.	Home Affairs.	External Affairs.	Treasury.	Prime Minister's Department.	Home and Territories.	Works and Railways.	Total.
	£	£	£	£	£	£	£	£	£	£
1916	1,940,682	133,976	644,134	168,898	50,598	2,547	..	..	..	2,940,835
1917	1,765,253	201,419	590,770	(*a*)	(*a*)	2,085	120,591	293,836	1,314,793	4,288,747
1918	245,501	109,164	233,255	(*a*)	(*a*)	2,377	..	27,718	4,188	622,208
1919	97,018	38,542	230,643	(*a*)	(*a*)	609	..	22,156	7,688	405,656
1920	116,663	12,104	184,788	(*a*)	(*a*)	1	..	21,489	159	335,154

(*a*) Merged into other Departments.

It will be seen that the Commonwealth expenditure from Consolidated Revenue on new works for the first two years of the table was of considerable magnitude. This was largely due to expenditure on fleet construction, which was supplemented in 1916–17 by large payments on account of works and railways which had formerly been charged to loan funds.

5. **Cost of Departments, etc.**—Arranged in such a manner as to shew under each Department the expenditure on behalf of that Department, the cost of the several branches of the Commonwealth service for the years 1915–16 to 1919–20 was as follows :—

COST OF COMMONWEALTH DEPARTMENTS, ETC., 1915–16 TO 1919–20.

Departments, etc.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
Governor-General	23,535	25,279	26,898	23,875	27,215
Parliament	263,397	344,060	237,464	245,713	348,415
Prime Minister	60,790	155,797	234,568	231,173	312,408
External Affairs	840,199	..	..	..	..
Attorney-General	86,164	94,195	96,930	94,686	111,007
Home Affairs	592,251	..	..	..	..
Treasury (*a*)	8,817,851	1,545,923	2,902,578	1,222,580	2,479,078
Trade and Customs	589,121	648,147	715,129	817,505	992,142
Defence	1,512,540	1,544,775	1,283,063	1,392,859	1,168,792
Navy	1,552,318	1,514,961	1,551,258	1,663,888	1,748,647
Postmaster-General	5,858,371	5,288,998	5,349,994	5,449,722	6,136,920
Home and Territories ..	..	484,274	465,701	489,163	478,281
Works and Railways	..	886,661	672,893	683,874	714,196
All other Expenditure (*b*) ..	9,718,684	15,263,945	16,960,023	25,947,547	31,550,309
Total	24,415,221	27,797,015	30,499,494	38,262,585	46,062,619

(*a*) For an explanation of the varying amounts in the expenditure on the Treasury see footnote to the table on page 685. (*b*) For details see table on page 687.

The heading "all other expenditure" includes War Services. More detailed reference to the items included under the above general heads is furnished in the succeeding paragraphs, and attention is particularly directed to the table giving detailed information concerning the items composing "all other expenditure" on page 687.

6. **Governor-General.**—In section 3 of the Constitution it is enacted that, until the Commonwealth Parliament otherwise provides, there shall be payable out of the Consolidated Revenue Fund for the salary of the Governor-General an annual sum of ten thousand pounds, and a proviso is made that the salary of the Governor-General

shall not be altered during his continuance in office. The total expenditure in connexion with the Governor-General and establishment for the five years 1915-16 to 1919-20 is as follows :—

EXPENDITURE, GOVERNOR-GENERAL AND ESTABLISHMENT, 1915-16 TO 1919-20.

Details.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
Salary	10,000	10,000	10,000	10,000	10,000
Governor-General's Establishment ..	4,365	5,079	6,351	4,390	9,243
Contingencies (a)	9,170	10,200	10,542	9,485	7,972
Total	23,535	25,279	26,893	23,875	27,215

(a) Represents official services outside the Governor-General's personal interests, and carried out in the main at the instance of the Government.

7. **Parliament.**—Under this head have been grouped all the items of expenditure connected with the Parliamentary government of the Commonwealth, including the salaries of the Ministers and the allowances to senators and members of the House of Representatives. Details for the five years 1915-16 to 1919-20 are furnished in the table given hereunder :—

EXPENDITURE, COMMONWEALTH PARLIAMENT, 1915-16 TO 1919-20.

Details.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
Salaries of Ministers	13,597	13,650	14,901	15,300	15,231
Allowances to Senators	21,000	20,866	20,854	20,760	22,376
Allowances to Members of House of Representatives	43,132	39,072	42,796	42,261	40,993
Officers, staff, contingencies, etc. ..	37,746	36,771	39,583	37,584	40,182
Repairs, maintenance, etc.	6,085	1,988	1,518	1,568	1,663
Printing	17,817	18,997	16,864	26,863	21,347
Travelling expenses of Members and others	10,458	10,339	9,950	8,913	9,379
Insurance	342	342	342	342	342
Electoral Office	49,155	53,091	53,717	53,159	60,677
Election expenses	1,360	83,276	4,355	2,459	98,110
Referendum	21,334	77	..	..	
Administration of Electoral Act ..	34,687	60,100	27,425	31,460	33,859
Miscellaneous	6,684	5,491	5,159	5,044	4,256
Total	263,397	344,060	237,464	245,713	348,415

In section 66 of the Constitution, provision is made that there shall be payable out of the Consolidated Revenue Fund of the Commonwealth, for the salaries of Ministers of State, an annual sum which, until Parliament otherwise provides, shall not exceed £12,000. This was modified in 1915-16, when the Minister of the Navy was given separate Cabinet rank. Allowances to senators and members of the House of Representatives are also provided for in the Constitution, section 48 of which specifies that until Parliament otherwise provides, each such allowance shall consist of £400 a year, reckoned from the day on which the member takes his seat. During the second session of the Commonwealth Parliament in 1907 the question of allowances to members came under consideration, and an Act was passed raising the annual allowance from £400 to £600, such increase to date from 1st July, 1907. During 1920, the salaries of members of both Houses were raised to £1,000 per annum.

8. **Prime Minister's Department.**—This was a new department created during the financial year 1911-12. In addition to the Prime Minister's Office it includes the Audit Office taken from the Treasury, the Executive Council taken from the External Affairs

Department, and the Public Service Commissioner's Office taken from the Home Affairs Department. In 1916–17 it assumed control of the High Commissioner's Office in London, which was detached from the old External Affairs Department when the latter was merged in the Home and Territories Department. The expenditure for the last five years is shewn in the following table :—

EXPENDITURE, PRIME MINISTER'S DEPARTMENT, 1915–16 TO 1919–20.

Details.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
Salaries, contingencies, etc.	11,906	21,691	25,761	33,328	29,125
Executive Council	137	170	160	177	210
Audit Office	12,574	16,726	18,480	25,486	27,745
Rent, repairs, etc.	3,021	4,678	16,489	7,028	6,997
Public Service Commissioner's Office ..	21,252	22,142	22,329	23,129	26,757
High Commissioner's Office	..	31,518	52,166	57,106	66,037
Interest on Commonwealth Securities	..	22,274	23,467	25,781	27,464
Sinking Fund on Commonwealth Securities	..	2,433	2,433	2,433	2,433
Mail Service to Pacific Islands ..	..	17,073	35,021	28,800	21,600
Miscellaneous	11,900	17,092	38,259	27,005	104,040
	60,790	155,797	234,568	231,173	312,408

The "Miscellaneous" vote for 1917–18 included a grant of £5,000 for the relief of sufferers from the cyclone in Queensland, and an item of £13,831 for the working expenses of the Port Pirie wharf. The "Miscellaneous" vote for 1919–20 included £32,979 as a grant for the relief of distress caused by the maritime strike; £17,301 for the expenses incurred during the visit of the Prince of Wales; £10,994 for the Basic Wage Commission; £15,727 for the Australian Commission in the United States; and £10,000 as a reward to Sir Ross Smith.

9. **Home and Territories.**—Under this new department, created in the financial year 1916–17, is placed the bulk of the old External Affairs Department (after the removal of the London office), and the Census and Statistics, and Meteorological Offices, taken from the old Home Affairs Department. The Darwin–Katherine River Railway is administered by the Works and Railways Department.

EXPENDITURE HOME AND TERRITORIES DEPARTMENT, 1916–17 TO 1919–20.

Details.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£
Chief Office	17,065	14,737	16,156	34,426
Census and Statistics ..	18,505	15,013	16,248	16,705
Meteorological Branch ..	27,499	25,971	28,209	29,706
Papua	61,746	51,918	51,260	51,492
Rents, repairs, etc.	1,951	10,493	14,905	13,207
Northern Territory	237,163	207,620	213,649	186,782
Federal Capital Territory ..	..	23,382	24,142	25,482
Norfolk Island	3,000	3,000	3,000	3,000
Interest on Commonwealth Securities (a)	72,202	74,548	84,881	91,572
Sinking Fund, Commonwealth Securities (a)	5,853	5,853	5,853	5,853
Miscellaneous	39,290	36,166	30,860	19,966
Total	**484,274**	**468,701**	**489,163**	**478,281**

(a) Includes Northern Territory and Port Augusta Railway.

10. **Attorney-General's Department.**—The extra expenditure connected with this Department of late years has been caused in large measure by the extension of the Federal High Court. Details for the five years 1915–16 to 1919–20 are furnished hereunder :—

EXPENDITURE, ATTORNEY-GENERAL'S DEPARTMENT, 1915-16 TO 1919-20.

Details.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
Attorney-General's Office	10,457	13,880	10,189	11,510	14,492
Crown Solicitor's Office	10,078	10,766	11,255	12,943	16,042
Salaries of Justices of High Court..	21,500	21,500	21,500	21,500	22,448
High Court expenses	9,947	10,280	9,852	8,837	11,922
Court of Conciliation and Arbitration	8,637	11,068	7,900	6,242	7,650
Rent, repairs, etc.	3,412	3,217	9,414	4,839	4,733
Patents, Trade Marks, etc... ..	20,579	21,856	19,253	23,875	32,321
Miscellaneous	1,554	1,628	7,567	4,940	1,399
Total	86,164	94,195	96,930	94,686	111,007

11. **Works and Railways Department.**—The great extension of Commonwealth Works and Railways led, in 1916–17, to the separation of these functions from the old Home Affairs Department and the constitution of a separate office. This new office also administers those Railways which were formerly under the control of the old External Affairs Department. The expenditure for the four years of its existence is as follows :—

EXPENDITURE, WORKS AND RAILWAYS DEPARTMENT, 1916-17 TO 1919-20.

Details.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£
Chief Office	40,558	31,162	36,594	39,770
Kalgoorlie–Port Augusta Railway ..	302,550	232,726	237,204	264,798
Port Augusta–Oodnadatta Railway, and Northern Territory Railways	312,906	172,637	162,077	159,456
Interest on Transferred Properties ..	404	403	403	403
Interest on Commonwealth Securities ..	198,406	208,811	226,083	232,948
Sinking Fund on Commonwealth Securities..	11,957	11,957	11,957	11,957
Rent, repairs, etc.	14,635	2,953	2,957	3,286
Miscellaneous	5,245	12,244	6,599	1,578
Total	886,661	672,893	683,874	714,196

The rather large expenditure on the Port Augusta–Oodnadatta Railway in 1916–17, as compared with subsequent years, is due to the repayment of £137,128 which constituted part of the debt upon the line, and matured on 1st April, 1917.

12. **Treasurer's Department.**—The sub-departments under the control of the Commonwealth Treasurer are the Treasury, the Pensions Department, and the Taxation Office. The Audit Office was transferred to the Prime Minister's Department in 1911–12. Details of the expenditure of this Department for the last five years are given in the following table :—

EXPENDITURE, TREASURER'S DEPARTMENT, 1915–16 TO 1919–20.

Details.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
Treasury	26,996	37,993	29,391	32,072	48,393
Taxation Office	133,495	198,967	281,523	311,330	375,710
Pensions Office	42,796	52,214	53,391	61,406	73,509
Maternity Allowance Office ..	11,334	13,263	12,280	11,209	12,708
Coinage	16,584	28,728	30,481	18,411	18,956
Rent, Repairs, &c. ..	17,103	15,487	20,491	18,715	25,676
Interest on Commonwealth Securities	14	19,833	12,273	..	..
Miscellaneous	18,187	29,411	7,696	93,597	29,132
Departmental Expenditure	266,500	395,896	447,526	546,740	584,084
Invalid and Old-age Pensions (*a*)	2,859,766	453,344	1,781,564	..	1,196,454
Maternity Allowance ..	659,745	662,030	634,428	620,080	625,865
Maintenance of persons in charitable institutions ..	31,831	34,653	39,060	55,760	72,675
Total	3,817,851	1,545,923	2,902,578	1,222,580	2,479,078

(*a*) In addition, the following amounts were spent from Trust Funds:—In 1916–17, £3,000,000; in 1917–18, £2,077,427; in 1918–19, £3,879,241; and in 1919–20, £3,350,425.

The fluctuations in the expenditure on this Department are mainly due to the variations in the method of payment of the Invalid and Old-age Pensions, as explained in the footnote. The "Miscellaneous" vote for 1918–19 included £78,344, temporary credits under certain Trust Fund accounts.

13. **Trade and Customs.**—Under this head have been included the expenditure of all the sub-departments under the control of the Minister of Trade and Customs, as well as the amounts payable as sugar and other bounties and the expenses in connexion therewith. The administration of Patents, Trade Marks, and Copyright is now entrusted to the Attorney-General's Department. The large amount of £133,791 included in "Miscellaneous" for 1919–20 is due to the payment of £130,036 to the Australian Wheat Board as profit on cornsacks. Particulars for the five years 1915–16 to 1919–20 are given in the following table:—

EXPENDITURE, TRADE AND CUSTOMS DEPARTMENT, 1915–16 TO 1919–20.

Details.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
Chief Office	15,986	19,223	21,849	29,404	37,362
Customs (ordinary)	323,309	344,303	339,698	350,253	399,534
Fisheries	492	170	224	96	..
Analyst	3,576	4,440	3,498	4,804	5,637
Audit (proportion)	6,722	5,786	4,525	4,617	5,538
Quarantine	38,804	46,251	50,748	150,820	100,030
Pensions and retiring allowances	14,524	16,215	16,545	17,213	17,186
Rents, repairs, etc.	21,067	19,103	20,945	18,066	20,933
Sugar and other bounties ..	6,767	3,169	15,418	30,460	16,292
Iron bonus	24,465	11,454	..	..	..
Inter-State Commission ..	10,231	10,096	11,903	12,007	10,546
Lighthouses	86,524	128,767	133,837	137,364	147,349
Interest on transferred properties	30,125	29,933	79,294	43,951	77,795
Interest on Commonwealth securities	..	..	726	2,200	3,267
Bureau of Commerce and Industry	..	..	..	..	3,774
Institute of Science and Industry	..	..	6,981	13,131	14,109
Miscellaneous	6,529	9,237	8,938	3,119	133,791
Total	589,121	648,147	715,129	817,505	992,142

The rise in expenditure on quarantine and lighthouses in recent years has counteracted the abolition of the sugar bounty, and caused an increase in the expenditure on this Department.

14. **Defence.**—The Commonwealth expenditure from Consolidated Revenue in connexion with Defence, which in 1901–2 amounted to £861,218, had by 1919–20 grown to only £1,163,792. As shewn elsewhere, the bulk of the war expenditure is provided for out of loan. Particulars for the five years 1915–16 to 1919–20 are as follows :—

EXPENDITURE, DEFENCE, 1915–16 TO 1919–20.

Details.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
Chief Office	46,441	49,267	50,163	47,143	59,133
Military	1,273,885	1,311,481	1,052,848	1,153,036	914,089
Audit (proportion) ..	5,486	11,117	21,548	8,407	13,196
Pensions and retiring allowances	363	191	380	380	375
Rents, repairs, etc. ..	76,744	68,314	54,599	53,484	46,063
Interest on transferred properties	88,519	88,512	88,490	92,289	88,925
Interest on Commonwealth Securities	..	..	1,839	5,917	12,025
Miscellaneous	21,102	15,893	13,196	32,203	29,986
Total	1,512,540	1,544,775	1,283,063	1,392,859	1,163,792

15. **Navy Office.**—During the financial year 1915–16, the Navy Office, owing to its increasing importance, was separated from the Defence Department and constituted an independent Department. Appended is the expenditure for the last five years, under similar headings to those of the Defence Department :—

EXPENDITURE, NAVY DEPARTMENT, 1915–16 TO 1919–20.

Details.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
Chief Office	39,170	40,747	39,176	39,689	49,296
Naval	1,444,521	1,401,659	1,426,988	1,506,897	1,562,029
Audit (proportion)	1,163	1,272	1,017	1,711	2,908
Pensions and retiring allowances	899	899	899	1,012	827
Rents, repairs, etc.	17,402	15,969	19,079	25,738	32,398
Interest on transferred properties	39,920	41,058	41,058	44,410	41,546
Interest on Commonwealth Securities	2,270	4,381	16,995	42,523	58,960
Sinking Fund, Commonwealth Securities	40	40	40	40	40
Miscellaneous	6,930	8,936	6,006	1,868	823
Total	1,552,318	1,514,961	1,551,258	1,663,888	1,748,847

16. **Postal.**—The expenditure of this Department has remained practically constant in the five years under review, except that the last year shows an increase. Full details are given in the table hereunder.

EXPENDITURE, POSTAL DEPARTMENT, 1915-16 TO 1919-20.

Details.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
Chief Office	21,400	22,821	21,960	23,189	25,842
Postal Department (ordinary) ..	4,904,839	4,853,886	4,920,251	5,015,429	5,681,340
Audit (proportion)	3,670	2,981	2,635	2,888	6,224
Pensions and retiring allowances	53,358	55,877	59,174	64,720	67,842
Rents, repairs, etc.	92,083	67,494	60,070	60,756	62,415
Interest on transferred properties	217,625	217,602	212,227	210,908	214,815
Interest on Commonwealth Securities	33,619	40,539	42,150	46,420	52,832
Sinking Fund on Commonwealth Securities	16,271	16,271	16,271	16,271	16,271
Miscellaneous	15,506	11,527	15,256	9,141	9,339
Total	5,358,371	5,288,098	5,340,904	5,449,722	6,136,920

17. **Miscellaneous.**—In addition to the foregoing there are certain items which do not come under any of the heads enumerated. They consist in the main of war services, expenditure on new works which has already been treated in detail on page 680, and sums carried forward in respect of pensions in subsequent years. The particulars for the five years, 1916-20, are given in detail in the next table.

ALL OTHER EXPENDITURE, 1915-16 TO 1919-20.

Details.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
New Works	2,940,835	4,288,747	622,203	405,858	335,154
War Services (a)	3,777,849	8,421,654	11,863,250	21,255,101	24,579,099
Carried forward in respect of pensions	3,000,000	2,077,427	3,925,820	3,476,478	5,724,806
Interest—State Loans Act ..	..	105,000	548,750	810,312	911,250
Miscellaneous	..	371,117	..	..	..
Total	9,718,684	15,263,945	16,960,023	25,947,547	31,550,309

(a) For details see second table appended to next paragraph.

18. **Cost of the War.**—A substantial amount of the cost of the war has been paid out of consolidated revenue in the last six years under the heading "War Services." The expenditure on the war from revenue has already been dealt with in the previous table, but a further table is here presented shewing the total expenditure from the different funds during the four years for which the war lasted up to 1917-18, and including also the period 1918-20, which contained the last four months of war, and the first portion of the reconstruction period.

COST OF WAR SERVICES TO COMMONWEALTH TO 30th JUNE, 1920.

Year.	From Consolidated Revenue.	From War Loan Fund.	Total.
	£	£	£
1914–15	640,217	14,471,118	15,111,335
1915–16	3,777,849	37,423,568	41,201,417
1916–17	8,421,654	53,114,237	61,535,891
1917–18	11,863,251	55,095,109	66,958,360
1918–19	21,255,101	62,192,889	83,447,990
1919–20	24,579,099	46,070,595	70,649,694
Total	70,537,171	268,367,516	338,904,687

The expenditure in 1920–21, which will be mainly incidental to Repatriation and interest services, has been estimated at £62,241,931, of which £36,841,931 will come from Revenue, and £25,400,000 from Loan Funds. Full details of the war expenditure from Revenue and from Loan are given in the subjoined tables.

WAR SERVICES EXPENDITURE FROM REVENUE TO 30th JUNE, 1920.

Heading.	1914–15.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
Special Appropriations—						
Interest, Commonwealth Loans	..	..	2,738,673	4,574,817	7,709,771	10,268,246
Interest, Imperial Loans ..	..	..	2,082,256	2,477,288	2,377,690	2,377,656
Sinking Fund, Commonwealth Loans	..	..	689,384	515,781	955,803	1,067,402
Sinking Fund, Imperial Loans	..	..	477,743	245,410	245,410	245,410
War Pensions, &c. ..	..	..	..	..	..	409,862
Annual Votes—						
Defence	640,217	3,005,994	550,377	532	310	497
Navy	..	771,855	686,701	..	272,608	143,274
Treasury	..	..	1,186,488	3,043,046	8,373,696	7,406,601
Prime Minister's Department	..	..	..	999,198	8,194	1,275
Trade and Customs ..	..	..	10,030	7,179	9,238	9,483
Repatriation	..	..	..	..	1,300,044	2,614,979
Works and Railways ..	..	..	..	..	2,637	34,414
Total .. .	640,217	3,777,849	8,421,654	11,863,251	21,255,101	24,579,099

The extremely large vote debited to the Treasury in 1918–19 includes £3,430,000, which represents two years' interest to the Imperial Government for the maintenance of troops, and £4,827,368 spent on War Pensions. In 1919–20 it includes £5,450,000 for War Pensions, and £1,816,000 interest to the Imperial Government.

WAR EXPENDITURE FROM WAR LOAN FUND TO 30th JUNE, 1920.

Department.	1914–15.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
Defence ..	14,471,118	31,938,863	47,116,871	52,877,295	49,434,567	17,979,748
Navy ..	..	5,093,530	3,324,181	509,888	7,194,345	3,580,064
Treasury ..	..	..	386,743	1,128,907	5,314,153	15,379,318
Trade and Customs ..	..	391,175	111,822	12,778	39,141	(a) 41,680
Prime Minister	..	..	2,083,483	420,759	120,863	140,713
Home and Territories ..	..	..	91,137	85,482	4,458	36,531
Repatriation ..	..	..	..	..	85,362	8,090,614
Works and Railways ..	..	..	..	..	..	230,279
Total	14,471,118	37,423,568	53,114,237	55,095,109	62,192,889	(b) 46,070,595

(a) Credit. (b) Including £685,008 War Gratuity.

The expense incurred upon the Defence Department was almost entirely in connexion with the expeditionary forces. The largest item in the case of the Treasury was an advance of £10,149,222 to the States and Papua for the purpose of settling returned soldiers on the land.

(D) Subsidy Paid to States.

1. **Payments to the Several States.**—In the following table are furnished particulars relative to the amounts actually paid to the several States on account of each of the financial years 1915-16 to 1919-20 :—

COMMONWEALTH SUBSIDY PAID TO STATES, 1915-16 TO 1919-20.

State.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
New South Wales	2,207,872	2,286,913	2,317,783	2,380,139	2,472,717
Victoria	1,743,467	1,722,409	1,739,481	1,764,239	1,847,085
Queensland	836,743	823,771	845,913	856,300	895,454
South Australia	540,649	531,340	535,808	549,593	578,094
Western Australia	591,064	569,982	561,129	556,505	569,512
Tasmania (a)	247,200	246,004	250,260	257,557	267,630
Total (a)	6,256,995	6,180,419	6,250,374	6,364,333	6,630,492

(a) Not including special grant of £90,000 to Tasmania.

The normal rate of increase was checked in 1914-15 owing to the departure of the troops, and in 1915-16 four of the States, from this cause, shewed a decrease. This was still more marked in 1916-17, but, owing to the return of soldiers, increases were manifested in 1917-18 and 1918-19. The amounts allotted to Tasmania are exclusive of the instalments of the special payment.

The amounts of subsidy given in the preceding table are based upon an annual payment of £1 5s. per capita, with a special concession to Western Australia. This is in accordance with the provisions of the "Commonwealth Surplus Revenue Act" which was passed in 1910 and came into effect on the 1st July, for a period of ten years, after which it became subject to revision. This period expired on the 30th June, 1920, and it is now possible for Parliament to extend the Act for a further period, or to make new financial provisions for a Commonwealth subsidy to the States. In the meantime the existing arrangement is being continued provisionally. The matter was discussed at a meeting of Commonwealth and State Ministers held in January, 1919, at Melbourne, and the Commonwealth Treasurer of the day (Mr. Watt) made the following tentative proposal as the basis of a new arrangement :—In 1920-21 the States were to receive 22s. 6d. per capita, and in each succeeding year an amount diminishing by 2s. 6d. per head until 1925-26, when they would receive 10s. per head, after which the arrangement would come up for further revision. The Conference, however, adjourned without coming to a decision. It was subsequently announced that the matter would come up for decision at the forthcoming Federal Convention.

§ 3. Trust Fund and Miscellaneous.

1. **Trust Accounts.**—The Trust Fund credit balance on 30th June, 1920, amounted to £82,375,522, as compared with £75,058,977 for the corresponding date in the year ending 30th June, 1919. These enormous amounts are due mainly to the Australian Notes Account referred to in detail in par. 2 hereunder. Other large items are "Interest —Imperial Government" and "Invalid and Old-age Pensions." Details concerning the most important trust accounts contributing to this amount are as follows:—

COMMONWEALTH TRUST FUND, 30th JUNE, 1920.

Trust Accounts.	Balance at 30th June, 1920.	Trust Accounts.	Balance at 30th June, 1920.
	£		£
Admiralty	91,504	National War Histories	14,969
Australian Notes Account	63,676,560	Naval Dockyard	46,283
Repatriation	113,410	New York Transactions Suspense	46,172
Australian War Museum	25,721	Northern Territory	99,905
Commonwealth Steamers	90,530	Other Trust Funds	469,465
Defence Clothing Material	356,220	Port Augusta Railway Sinking Fund	53,972
Small Arms Ammunition	238,119	Public Trustee	94,372
Small Arms	17,423	Railway Plant and Stores	53,794
Deferred Naval Pay	265,405	Ships' Insurance	449,037
Detained Enemy Vessels	15,424	State Loans Suspense	73,039
General Average Deposits	11,787	Unclaimed Militia Pay	17,770
Interest—Imperial Government	4,802,416	War Loan Securities Repurchase	960,331
Insurance, Lost Enemy Vessels	446,904	War Pensions	2,824,806
International Post and Money Order	30,491	War Savings Certificates Interest	564,124
Invalid and Old-age Pensions	2,900,000	Williamstown Dockyard	16,480
Loans Sinking Fund	2,090,818	Miscellaneous	70,463
London Liabilities	753,419		
Money Order	718,600	Total	82,375,522

2. **Australian Notes Account.**—After the passage of the Australian Notes Act, Australian notes began to appear in circulation in December, 1910. For the first half of the calendar year 1911, they circulated side by side with bank notes and Queensland Treasury notes. After 30th June, 1911, the penal clauses of the Notes Act came into operation, and the banks and the Queensland Government began to withdraw their notes from active circulation. By the end of the year the process was virtually complete. On 30th June, 1920, the notes issued and unredeemed amounted to £56,768,530. Against this there was a reserve in gold coin of £23,658,092 or 41.67 per cent., and other assets, of which the most important were investments in Government Stock and fixed deposits, totalling £37,808,770 and returning an annual income of about £1,500,000.

The position, according to a Treasury return issued at the end of June, 1921, was as follows:—

COMMONWEALTH NOTES ISSUED AND UNREDEEMED AT 27th JUNE, 1921.

	£
10s.	2,311,869½
£1	14,413,496
£5	9,960,225
£10	4,217,550
£20	616,980
£50	1,485,350
£100	1,592,600
£1,000	23,630,000
	£58,228,070½

The amount of the gold reserve was £23,844,394, representing 40.95 per cent. of the liability.

The subject is discussed at some length in Section XXI., Sub-section 2, *Banking*.

3. **Advances by Commonwealth Government to States.**—Reference has been made in the previous paragraph to the investments constituting the assets of the Australian Notes Account. A large proportion has been advanced to the respective State Governments for short periods, sometimes as low as one year. This is an interesting departure in Australian Public Finance, and in view of the financial relations thus brought about between the Commonwealth and State Governments, the following table is appended, giving full particulars of the investments of the £37,808,770, to which reference has already been made:—

AUSTRALIAN NOTES ACCOUNT.—PARTICULARS OF INVESTMENT AS AT 30th JUNE, 1920.

Investment.	Amount.	Rate of Interest.	Date of Maturity.	Amount of Interest.
	£	%		£
Commonwealth Inscribed Stock ..	3,830,000	3½	1962-1972	134,050
Commonwealth War Loan	63,640	4½	1925	2,864
Commonwealth Treasury Bills	5,777,530	4	(a)	231,101
New South Wales Treasury Bills ..	7,400,000	4⅛	1925	305,250
Victorian Debentures	784,000	3½	1921	28,000
Victorian Debentures	3,900,000	4⅛	1925	160,875
Victorian Government Securities ..	583,000	5¼	(a)	7,875
Queensland Government Securities ..	1,490,000	5¼	(a)	78,225
South Australian Treasury Bills ..	2,600,000	4⅛	1925	107,250
Western Australian Stock	590,000	3¾	1926	22,125
Western Australian Treasury Bills ..	3,100,000	4⅛	1925	127,875
Western Australian Government Securities	335,000	5¼	(a)	17,587
Tasmanian Stock	460,000	3¾	1921	17,250
Tasmanian Treasury Bills	1,000,000	4⅛	1925	41,250
Tasmanian Government Securities ..	469,000	5¼	(a)	24,622
Bank Deposits	5,426,600	3 to 5	(a)	(b) 217,064
Total	37,808,770	..	..	(b)1,523,263

(a) Not fixed. (b) Approximate.

4. **London Flotations on behalf of States.**—Act No. 17 of 1916 authorised the Treasurer to borrow £8,940,000 in the United Kingdom, and Act No. 16 of 1917 to raise £8,000,000, and to lend the amount to the several States, other than that of New South Wales, and, pending the borrowing of the money, to advance the amounts set forth in the Acts out of loans made by the Government of the United Kingdom to the Commonwealth. In pursuance of these Acts, £16,750,000 was distributed to the States up to 30th June, 1920. The money was allocated to the States as follows:—

COMMONWEALTH LOANS RAISED IN LONDON ON BEHALF OF STATES AS AT 30th JUNE, 1920.

State.	£
Victoria	1,954,000
Queensland	5,482,500
South Australia	4,116,000
Western Australia	4,150,500
Tasmania	1,067,000
Total	16,750,000

In addition to these amounts the Commonwealth Government had advanced as at 30th June, 1920, the sum of £11,235,310 to the States for the purpose of settling returned soldiers on the land. This sum was allocated as follows:—New South Wales, £1,996,731; Victoria, £5,750,371; Queensland, £727,678; South Australia, £614,058; Western Australia, £1,166,097; and Tasmania, £980,375. In addition, New South Wales was advanced £755,610 for the construction of silos for wheat storage. Lastly, the following advances were made to States to provide reserve employment through Local Government Bodies:—Victoria, £15,700; Queensland, £100,000; and South Australia, £19,796.

5. **Surplus Revenue.**—Until the end of 1906–7, the whole balance of the Consolidated Revenue Fund was paid to the States. From 1907–8, and until the abolition of the book-keeping provisions of the Constitution, the States received only three-fourths of the net Customs and Excise Revenue, and the balance of the Consolidated Revenue Fund was transferred to the Invalid and Old-age Pensions Trust Account, and the Naval Defence Trust Account, to provide for expenditure in subsequent years. The surplus existing on 30th June, 1920, is to be used for the payment of Invalid and Old-age Pensions, and War Pensions. A statement of surpluses and deficiencies for the past five years is hereto appended.

COMMONWEALTH SURPLUS REVENUE, 1915–16 TO 1919–20.

Year.	Surplus.	Deficiency.	Accumulated Surplus at end of Year.
	£	£	£
1915–16	3,000,000	..	3,000,000
1916–17	..	922,573	2,077,427
1917–18	1,848,393	..	3,925,820
1918–19	..	402,763	3,523,057
1919–20	2,201,749	..	5,724,806

§ 4. Commonwealth Public Debt.

Although it was not until 1915 that the Federal Government appeared before the public as a direct borrower, there had been a Commonwealth Public Debt for many years. It now includes several items, such as the balance of the debt taken over from South Australia, the money owing to the States for transferred properties, the Commonwealth General Loan Fund, the loans for military purposes, etc. In view of the large expansion of the Public Debt, and its present importance in Commonwealth public finance, the different items are treated seriatim in the sub-sections that follow.

1. **Loans Taken Over from South Australia.**—The first portions of the debt were contracted at the beginning of 1911, when the Commonwealth assumed responsibility for the administration and the liabilities of the Northern Territory and the Port Augusta-Oodnadatta Railway. At 30th June, 1911, the debt on account of the former was £3,657,836, and on account of the latter, £2,274,486—a total of £5,932,322. As the securities fall in they are redeemed by the Commonwealth Government, the money required being taken from the Loan Fund, which was created for this purpose, amongst others. This item is thus a constantly diminishing one, and on 30th June, 1920, stood at £4,192,111, of which £2,433,108 was on account of the Northern Territory, and £1,759,003 on account of the railway.

2. **Loan Fund for Public Works, etc.**—Up to 1911 the Commonwealth Government had met its Public Works expenditure out of Revenue. In that year, however, the Commonwealth being faced with the heavy prospective cost of the Transcontinental Railway and the Federal Capital Territory, it was decided to initiate a Loan Fund similar to those of the States. The flotation of this Fund was greatly assisted by the fact that the Treasury at this time held a large quantity of gold, principally on behalf of the Australian Notes Account, at that time only just inaugurated. Up to 30th June, 1914, the money required for loan expenditure was taken mainly from this account at 3½ per cent., and inscribed stock of an equivalent value created. Since the outbreak of war the creation of inscribed stock has ceased, the money required for the Loan Fund being obtained by the issue of Treasury Bills. The relation between the magnitude of the Loan Fund and the expenditure therefrom is shewn for the last five years in the following table :—

SECURITIES CONSTITUTING COMMONWEALTH LOAN FUND FOR WORKS, ETC., AND EXPENDITURE THEREFROM, 1916 TO 1920.

Year ended 30th June—	Commonwealth Loan Fund.			Expenditure in year ended 30th June.	Total Expenditure up to year ended 30th June.
	Inscribed Stock.	Treasury Bills.	Total Receipts.		
	£	£	£	£	£
1916	4,580,000	4,437,543	9,017,543	2,859,341	9,017,543
1917	4,580,000	4,437,543	9,017,543	..	9,017,543
1918	4,580,000	6,240,990	10,820,990	1,803,447	10,820,990
1919	4,580,000	7,670,881	12,250,881	1,429,891	12,250,881
1920	4,580,000	8,957,667	13,537,667	1,286,786	13,537,667

The preceding table gives the total expenditure. The details of the expenditure for five years are as follows :—

COMMONWEALTH LOAN EXPENDITURE FOR WORKS, ETC., DETAILS, 1916 TO 1920.

Particulars.	1915–16.	1916–17.(b)	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
Railways Construction—Trans Australian Railway ..	1,046,953	..	410,596	156,187	138,164
Northern Territory	126,592	..	42,178	1,226d	2,539
Other	..	..	4,260	2,193	d91
Loan Redemption—Oodnadatta Railway ..	923	..	..	..	..
Northern Territory ..	400,000	..	..	339,408	..
Papua—Railways and Wharves	12,829	..	..	..	..
Posts and Telegraphs—Purchase of land ..	92,712	..	2,811	1,692	d596
Construction of conduits	271,211	..	67,375	116,760	305,538
Acquisition of land (a)—London ..	113,744	..	69,991	46,120	58,611
Perth	..	..	24,847	18,291	23,073
Federal Territory	127,587	..	90,703	1,395	11,968
Elsewhere (c) ..	..	..	37,622	67,448	37,375
Defence Machinery; Dockyards, Cockatoo Island; Naval Bases, &c.	66,840	..	375,913	510,318	282,044
Fleet Construction	..	..	355,397	..	..
General Arsenal; Small Arms, &c.; Cordite	..	..	27,259	58,761	350,816
Lighthouses	..	..	42,473	16,115	26,795
Contribution under River Murray Waters Act	..	..	..	55,760	39,241
Acetate of Lime Factory	..	..	52,410	18,001	..
Plant and Stores Suspense Account ..	..	..	200,000	..	..
Wireless Telegraphy	..	..	118	22,668	11,509
Total	2,859,341	..	1,803,447	1,429,891	1,286,786

(a) Including cost of erection of buildings. (b) No transactions in 1916–17. Payments for Works Construction were made from Revenue. (c) Excluding purchases for Posts and Telegraphs. (d) Credited by repayment.

The expenses of interest and sinking fund are allocated among the different departments which have benefited, as follows :—

LIABILITIES OF DIFFERENT DEPARTMENTS WITH REGARD TO LOAN FUND, 1919-20.

Department.	Interest on Inscribed Stock.	Sinking Fund. Inscribed Stock.	Interest on Treasury Bills.	Total.
	£	£	£	£
Prime Minister	17,034	2,433	10,429	29,896
Home and Territories	40,974	5,853	50,598	97,425
Defence	..	..	12,025	12,025
Navy	28	40	58,952	59,020
Trade and Customs..	..	..	3,267	3,267
Works and Railways	83,697	11,957	149,250	244,904
Postmaster-General	18,567	16,271	34,265	69,103
Total	160,300	36,554	318,786	515,640

3. **Properties Transferred from States.**—At the time of Federation, when the Commonwealth took over the control of a great many departments which had previously been administered by the States, a large amount of property was handed over to the Commonwealth Government. This consisted mainly of Post Offices, Customs Houses, Defence works, and other buildings necessary to the effective working of the transferred departments. In the early days of the "Braddon Clause," when the Federal Government was spending less than its statutory proportion of the Customs revenue, the question of suitable compensation to the States did not become acute; but, when the "Braddon Clause" was replaced by another arrangement between Commonwealth and States, much less favourable to the latter, the time had evidently come to put matters on a more definite footing. In the Commonwealth accounts of the last nine years, certain amounts (independent entirely of the subsidy) have been paid to the States as "Interest on Transferred Properties." These amounts have been substantially based upon a valuation made by the old Home Affairs Department, with the following result :—

ORIGINAL VALUATION OF TRANSFERRED PROPERTIES.

State.	Department.				
	Postmaster-General.	Defence.	Trade and Customs.	Home Affairs.	Total.
	£	£	£	£	£
New South Wales ..	2,337,316	1,182,003	154,009	1,320	3,674,648
Victoria	1,332,862	805,389	190,657	1,266	2,330,174
Queensland	925,628	386,802	202,082	7,356	1,521,868
South Australia	842,281	161,140	28,486	815	1,032,722
Western Australia ..	600,895	64,842	37,714	835	704,286
Tasmania	214,906	121,490	48,212	143	384,751
Total	6,253,888	2,721,666	661,160	11,735	9,648,449

Since the valuation some transfers and retransfers have been made. The estimated value of the transferred properties for the last five years is given in the table in sub-section 6 hereinafter.

4. War Loan from the Imperial Government.—On the outbreak of the European war in 1914, the Commonwealth Government contracted a loan from the Imperial Government for the purpose of financing the large military expenditure which was seen to be inevitable. At first, the arrangement was that the Imperial Government should advance the sum of £18,000,000 in twelve monthly instalments of £1,500,000 each. It was soon found, however, that this would be insufficient, and consequently the Imperial Government made a fresh advance of £6,500,000, also to be paid in monthly instalments. A third loan of £25,000,000 was subsequently negotiated, of which £12,000,000 was received by 30th June, 1916, and £11,000,000 in 1916-17. The total capital debt thus created up to 30th June, 1920, is set out in the following table :—

CAPITAL DEBT TO IMPERIAL GOVERNMENT ON ACCOUNT OF WAR LOANS, 30th JUNE, 1920.

Authority.	Imperial Loans—Capital Debt created up to 30th June, 1920.			
	Issues, 3½%.	Issues, 4½%.	Issues, 5%.	Total.
	£	£	£	£
War Loan Act 1914—£18,000,000 ..	1,263,158	11,500,000	5,757,540	18,520,698
War Loan Act No. 2 1915—£6,500,000	..	..	6,885,656	6,885,656
War Loan Act (United Kingdom) No. 2 1916—£25,000,000 (*a*)	..	..	23,675,705	23,675,705
	1,263,158	11,500,000	36,318,901	49,082,059

(*a*) Only £23,000,000 has been advanced.

In addition to this capital indebtedness, a further sum of £42,696,500 is due to the British Government for the maintenance of Australian troops.

The last item of nearly £43,000,000 remained unfunded until early in 1921. An arrangement was then concluded with the Imperial Government, by means of which almost the entire debt (nearly £92,500,000) was consolidated. The Commonwealth Government undertook to extinguish the debt by annual payments of approximately £5,550,000, spread out over 35¼ years. This provides for interest at nearly 5 per cent., and a sinking fund of a little more than 1 per cent., and may be regarded as a very satisfactory arrangement for the Commonwealth, since it entails only a moderate rate of interest, and provides for the ultimate extinction of nearly one-fourth of the National War Debt.

5. Flotation of War Loans in Australia.—In addition to the advances from the Imperial Government, the Commonwealth Government has raised large amounts of money for the prosecution of the war, by direct application to the investing public of Australia. Acts No. 21 and No. 50 of 1915 authorised the Commonwealth to make application for £20,000,000 and £18,000,000 respectively, and in pursuance of these a loan of £5,000,000 was placed upon the market late in 1915, and a further amount of £10,000,000 early in 1916. These issues—unprecedented in Australian finance—were entirely successful, the latter being subscribed twice over, and the former more than two and a-half times. Both loans were issued at par, bore interest at 4½ per cent., and

were redeemable on 15th December, 1925. The expenses included a commission of two shillings per cent. to the Commonwealth Bank, commission to brokers at ¼ per cent., and miscellaneous items such as printing. The total cost of flotation, however, was very moderate, amounting only to £86,103, or less than five shillings per cent. of the amount subscribed. The two Acts already mentioned were succeeded by a third, which authorised the Commonwealth Parliament to raise a further sum of £50,000,000. In pursuance of this a third issue was placed upon the market, closing on 1st August, 1916, and subsequently a fourth issue, closing on 8th February, 1917. It may be mentioned that whilst the expenses of flotation were small, the accrued interest was by no means negligible. Owing mainly to this, the net proceeds to the Federal Government only amounted to about 98¼ per cent., consequently, when allowance is made for redemption at par, the Government pays about £4 14s. per cent. interest, instead of the nominal 4½ per cent. In view, however, of the advancing rate of interest, this could not be called excessive.

A fifth Commonwealth War Loan, floated in November, 1917, realised £21,213,780, and a sixth loan, floated in April, 1918, realised £42,951,120. The sixth issue differed from the preceding ones in that it gave the investor the option of 4½ per cent. free of income tax, or 5 per cent. subject to tax, the bulk of the money being invested in the former security. The fifth and sixth loans, moreover, are redeemable on 15th December, 1927, thus to a large extent relieving the pressure on 1925 as year of maturity.

A seventh loan was floated in September and October, 1918. It was entirely a 5 per cent. loan, was repayable in 1923 after a currency of 5 years, and realised £44,083,750. This was the last War Loan. The first Peace Loan, floated in October, 1919, carried 5 per cent., and was redeemable on 15th December, 1927. It realized £25,025,370. Full particulars of the respective issues are as follows :—

PARTICULARS OF LOCAL AUSTRALIAN LOANS, TO 30th JUNE, 1920.

Number of Issue.	Number of Subscribers.			Amount Subscribed.		
	Inscribed Stock.	Treasury Bonds.	Total.	Inscribed Stock.	Treasury Bonds.	Total.
				£	£	£
1st War Loan	8,603	10,145	18,748	9,581,120	3,808,320	13,389,440
2nd War Loan	12,450	16,495	28,945	16,271,710	5,383,970	21,655,680
3rd War Loan	13,660	88,382	102,042	15,417,880	8,169,770	23,587,650
4th War Loan	13,666	53,806	67,472	14,695,240	6,888,780	21,584,020
5th War Loan	9,882	31,826	41,708	14,276,790	6,936,990	21,213,780
6th War Loan, 4½ per cent.	17,781	72,526	90,307	14,169,600	22,157,780	36,327,380
6th War Loan, 5 per cent.	8,549	45,008	53,557	4,441,470	2,182,270	6,623,740
7th War Loan	16,303	226,891	243,194	14,886,730	29,197,020	44,083,750
1st Peace Loan	9,208	87,566	96,774	11,474,690	13,550,680	25,025,370
Total	110,102	632,645	742,747	115,215,230	98,275,580	213,490,810

Number of Issue.	Deductions.			Net Proceeds of Loan.	Amount required.
	Accrued Interest.	Flotation Expenses.	Total.		
	£	£	£	£	£
1st War Loan	221,502	35,451	256,953	13,132,487	5,000,000
2nd War Loan	324,169	50,652	374,821	21,280,859	10,000,000
3rd War Loan	326,887	52,278	379,165	23,208,485	No definite amount
4th War Loan	254,071	45,795	299,866	21,284,154	18,000,000
5th War Loan	239,319	53,317	292,636	20,921,144	20,000,000
6th War Loan, 4½ per cent. ..	423,589	103,403	526,992	35,800,388	40,000,000 (6th War Loan, 4½ and 5 per cent.)
6th War Loan, 5 per cent. ..	72,767	18,854	91,621	6,532,119	
7th War Loan	361,010	140,410	501,420	43,582,330	40,000,000
1st Peace Loan	456,440	98,835	555,275	24,470,095	25,000,000
Total	2,679,754	598,995	3,278,749	210,212,061	..

6. **Total Commonwealth Public Debt.**—Separate consideration has now been given to the items composing the Public Debt. The table appended to this sub-section shews the entire debt of the Commonwealth (apart from the States) at yearly intervals since 1916. The liability on account of the note issue is excluded, but the liability on account of the transferred properties has been included for the entire period. The Commonwealth Public Accounts first took cognizance of this item in 1913 although the debt had been incurred much earlier.

PUBLIC DEBT OF THE COMMONWEALTH AS AT 30th JUNE, 1916 TO 1920.

Details.	1916.	1917.	1918.	1919.	1920.
	£	£	£	£	£
Balance of loans taken over from South Australia—					
(a) On account of Northern Territory	2,778,266	2,772,516	2,772,516	2,433,108	2,433,108
(b) On account of Oodnadatta railway	1,896,132	1,759,003	1,759,003	1,759,003	1,759,003
Value of properties transferred by States	10,781,797	10,789,739	11,202,515	11,202,619	11,440,462
Amount of Commonwealth Loan Fund—					
Inscribed Stock	4,580,000	4,580,000	4,580,000	4,580,000	4,580,000
Treasury Bills	4,808,661	4,437,543	6,240,990	7,670,881	9,815,600
War Loan from British Government ..	36,774,269	47,774,269	49,082,059	49,082,059	49,082,059
Commonwealth Internal Loans ..	34,965,430	80,242,510	143,190,680	184,437,870	207,184,380
Accrued Deferred Pay, A.I.F... ..	4,759,730	9,373,977	10,309,908	5,500,000	260,000
Loans raised on behalf of States ..	..	7,500,000	12,000,000	16,750,000	16,750,000
Gratuities	..	..	..	..	30,000,000
Miscellaneous	..	..	42,917,398	42,355,207	48,005,293
Total	101,344,285	160,229,557	284,055,069	325,770,747	381,309,905
Commonwealth Debt *per capita* ..	£20 13 5	£34 11 3	£57 0 6	£63 7 6	£71 19 0

It will be noticed that the amount of the Commonwealth Internal Loans does not quite agree with the totals of the first eight issues in the table on page 698. This is owing to the fact that stock to a considerable amount has been presented as payment of Estate Duty, and cancelled, the payments being accepted in accordance with the provisions of section 5 of the Commonwealth Inscribed Stock Act 1915. The amount of £207,184,380 is the balance of the first eight issues. To this must be added £5,297,500 raised by the sale of War Savings Certificates, and £11,293 by the sale of War Savings Stamps. The item "Miscellaneous" is made up of the last two amounts and a sum of £42,696,500 due to the British Government for the maintenance of Australian troops.

7. **Place of Flotation.**—The loans taken over from South Australia, which constituted the first portion of the Federal Public Debt, included both London and Australian securities. The presence in the Treasury of a large holding of gold, and the moderate rate of interest ruling on gilt-edged securities, made the conditions in 1911, and for some little time afterwards, very favourable for the flotation of local loans. London securities were redeemed as they fell due, and replaced by the 3½ per cent. stock of the Loan Fund. Consequently, up to 1914 the amount of the securities repayable in London fell steadily, and the amount repayable in Australia rose rapidly. In 1915 the military loan from the Imperial Government caused a sharp rise in the amount of the securities repayable in London, which was maintained in the two following years. This was, however, more than offset by the flotation of the local war loans. Appended is a table shewing particulars of the loans of the Commonwealth for five financial years which have been floated in London and Australia respectively. A separate column is reserved for the cost of the transferred properties, which, for obvious reasons, it is impossible to allocate.

COMMONWEALTH PUBLIC DEBT.—LONDON AND AUSTRALIAN FLOTATIONS, 1916 TO 1920.

Year ended 30th June—	Payable in— London.	Payable in— Australia.	Value of Transferred Properties.	Total.
	£	£	£	£
1916	40,063,440	50,499,048	10,781,797	101,344,285
1917	58,426,312	100,013,506	10,789,739	169,229,557
1918	102,579,102	170,273,452	11,202,515	284,055,069
1919	106,123,102	208,445,026	11,202,619	325,770,747
1920	111,680,602	258,188,841	11,440,462	381,309,905

8. **Rates of Interest.**—When the first debt was taken over from South Australia it consisted in the main of a mass of securities varying from 3 per cent. to 4 per cent., the average rate of interest for the first year being £3 12s. 4d. For the first three years the increase in the debt was due almost entirely to the expansion of the 3½ per cent. stock of the Loan Fund, and as a consequence the average rate of interest fell steadily, until on 30th June, 1914, it stood at £3 11s. 10d. Then came the loans for military purposes, and the fall in the average rate was ultimately converted into a rise which is almost certain to be maintained, since there is not likely to be any further borrowing for some time at a rate of less than 5 per cent. In fact, the influence of the heavy borrowing of the last five years at high rates is already reflected in the rise of the average rate of interest. It is notoriously difficult to forecast the future of the rate of interest, but the influence of the large Imperial War Loans on gilt-edged securities has been so far-reaching, that in all probability for some years the average rate of interest on the Federal Public Debt will rise continuously.

The accompanying table gives full particulars concerning the interest for the five financial years ended 30th June, 1920:—

RATES OF INTEREST ON COMMONWEALTH PUBLIC DEBT, 1916 TO 1920.

Rates of Interest.	Year ended 30th June— 1916.	1917.	1918.	1919.	1920.
%	£	£	£	£	£
Not bearing interest . .	4,759,730	9,373,977	. .	. .	. .
3 . .	35,063	35,063	35,063	35,063	35,063
3½ . .	16,796,712	16,804,654	17,217,430	17,217,534	17,455,377
£3/12/3 . .	720,411	720,411	720,411	720,411	720,411
3¾ . .	1,399,758	1,394,008	1,394,008	1,054,600	1,054,600
4 . .	7,156,070	6,647,823	8,451,270	9,881,161	12,025,880
4½ . .	56,076,541	101,353,621	200,261,846	192,766,897	192,130,633
5 . .	14,400,000	25,400,000	43,975,041	87,345,081	111,137,941
5¼ . .	. .	4,000,000	4,000,000	4,000,000	34,000,000
5½ . .	. .	3,500,000	8,000,000	12,750,000	12,750,000
Total . .	101,344,285	169,229,557	284,055,069	325,770,747	381,309,905
Average rate of interest	£4/2/10	£4/4/8	£4/10/9	£4/12/2	£4/13/7

A table is appended shewing the amounts payable as interest on the Commonwealth Public Debt as at 30th June in the years 1916–20 inclusive. The rapid increase is due not only to the great expansion of the War Loan Fund, but also to the high rate of interest on recent loans.

AMOUNT OF INTEREST PAYABLE ON COMMONWEALTH PUBLIC DEBT AS AT 30th JUNE—

Year.	£
1916	4,196,404
1917	7,166,105
1918	12,879,793
1919	15,017,497
1920	17,847,623

9. **Dates of Maturity.**—A table is appended giving the dates of maturity of the several portions of the Commonwealth debt. The Commonwealth Government has refrained from issuing interminable stock, although as regards about one-fourth of the debt no definite date of maturity had been assigned on 30th June, 1920. It will be noticed that about £225,000,000 falls due in the space of four years, 1923–27, the bulk of this being represented by the balance of the first eight internal loans.

DUE DATES OF THE COMMONWEALTH PUBLIC DEBT OUTSTANDING ON 30th JUNE, 1920.(a)

Due Dates.	Amounts.	Due Dates.	Amounts.	Due Dates.	Amounts.
	£		£		£
1920 ..	176,714	1926 ..	66,801	1939 ..	881,393
1921 ..	47,100	1927 ..	100,717,955	1945 ..	11,500,000
1922 ..	4,000,125	1928 ..	1,263,158	1947 ..	36,318,901
1923 ..	42,122,000	1930 ..	750,950	1972 ..	4,580,000
1924 ..	5,493,887	1935 ..	83,051	Indefinite ..	95,615,231
1925 ..	77,108,870	1936 ..	583,769		
				Total ..	381,309,905

(a) Those loans in the case of which the Government has the option of redemption during a specified period have been in each case classified according to the latest date of maturity.

On pages 671 to 674 will be found a series of graphs illustrating the rise in the revenue, public debt, and taxation of the Commonwealth and States since 1902, the year 1901–2 being the first complete financial year since Federation.

10. **Sinking Fund.**—The Commonwealth Government has followed the usual practice in establishing a sinking fund against most of the securities which constitute its public debt. Part of the inscribed stock issued for works purposes carries a sinking fund of 5 per cent., and the remainder one of ½ per cent. The loan from the Imperial Government, and the internal issues carry sinking funds, partly of ½ per cent., and partly of 1 per cent. The War Savings Certificates carry a sinking fund of ½ per cent., and the Northern Territory and Port Augusta–Oodnadatta Railway loans one of ½ per cent. These sinking funds are invested partly in Treasury Bills, partly in Commonwealth Inscribed Stock, and partly in Bonds (War Issues). The situation of the Sinking Funds, as at 30th June, 1920, is set out in the accompanying table. It must, however, be pointed out that the situation as regards the loan to the Imperial Government has been materially altered since that date by the funding arrangement described in detail on page 695.

COMMONWEALTH SINKING FUNDS TO 30th JUNE, 1920.

	Loans against which Sinking Funds are being accumulated.	Loans for Works Purposes.		Loans for War Purposes.		Northern Territory Loans.	Port Augusta Oodnadatta Railway Loans.
		5 per cent. Contributions.	½ per cent. Contributions.	½ per cent. Contributions.	1 per cent. Contributions.	½ per cent. Contributions.	½ per cent. Contributions.
	£	£	£	£	£	£	£
Commonwealth Inscribed Stock—							
For Works Purposes—							
Subject to 5 per cent. Contribution ..	303,435	96,219	..	..	..	..	..
Subject to ½ per cent. Contribution ..	4,276,565	..	146,778	..	..	..	..
For War Purposes ..	207,249,440	..	..	2,469,092	890,160	..	..
Loan from Imperial Government	49,082,059	..	..	736,231	477,743	..	..
War Savings Certificates	5,294,568	..	..	69,394	..	..	..
Northern Territory Loans	2,433,108	..	..	..	..	72,190	..
Port Augusta–Oodnadatta Railway Loans	1,759,003	..	..	..	..	..	46,263
	270,398,178	..	..	3,274,717	1,367,903	..	..
				4,642,620			
Add interest accumulated	..	7,296	11,232	96,652		12,322	7,709
				4,739,272			
Deduct Stock and Certificates surrendered in payment of Succession Duties		..	..	2,969,980		..	..
Total Sinking Funds at 30th June, 1920		103,515	158,010	1,769,292		84,512	53,972
				2,169,301			

SECTION XX.

STATE FINANCE.

§ 1. General.

1. **Functions of State Governments.**—In any comparison of the finances of the several States due recognition must be made of the actual functions assumed by the respective Governments, and of the local conditions and requirements in each case. Direct comparisons of public expenditure are thus rendered difficult, owing to the fact that functions which in one State are assumed by the Central Government are in another State relegated to local governing bodies, and further by the fact that costly developmental work may, under certain conditions, be not only economically justifiable, but may be an essential of progress, whilst parsimonious expenditure may be a serious economic blunder. A large expenditure may, therefore, be an indication either of gross extravagance and bad economy on the one hand, or of healthy and vigorous progress and good economy on the other.

Similarly, as regards revenue, imposts which in some States are levied by the Central Government, are in others considered as matters to be dealt with locally. Under these circumstances care is needed in instituting comparisons between the several States, and the particulars contained in this section should be read in connexion with those contained in the section dealing with Local Government. It should also be noted that in many ways the budgets of the Australian Governments differ materially from those of most European countries, owing to the inclusion therein of the revenue and expenditure of departments concerned in rendering public services, such for instance as railways, tramways, water supply, etc., which, in other countries are often left to private enterprise.

2. **Accounts of State Governments.**—The various financial transactions of the States are in each case concerned with one or other of three Funds—the "Consolidated Revenue Fund," the "Trust Funds," and the "Loan Funds." All revenue collected by the State is placed to the credit of its Consolidated Revenue Fund, from which payments are made under the authority of an Annual Appropriation Act passed by the Legislature, or by a permanent appropriation under a special Act. The hypothecation of the revenue from a specific tax to the payment for some special service is not practised in Australia, all statutory appropriations ranking on an equality as charges on the Consolidated Revenue Fund. The Trust Funds comprise all moneys held in trust by the Government, and include such items as savings banks funds, sinking funds, insurance companies' deposits, etc. The Loan Funds are credited with all loan moneys raised by the State, and debited with the expenditure therefrom for public works or other purposes.

3. **Inter-relation of Commonwealth and State Finance.**—The principal alteration in State finance, brought about by Federation, has been that the States have transferred to the Commonwealth the large revenue received by the Customs and Postal Departments and have been relieved of the expenditure connected with these and the Defence Departments, while, in their place, a new item of State revenue has been introduced, viz., the payment to the States of a Commonwealth subsidy. Provision for the taking over by the Commonwealth of certain of the public debts of the States is made in section 105 of the Constitution, and a proposed law extending this provision to the whole of the State indebtedness, which passed both Houses of the Federal Legislature by the statutory majority, was submitted to a referendum at the election in April, 1910, and received the requisite endorsement by the electorate. No action has as yet been taken, although the subject has, on more than one occasion, been under discussion.

§ 2. State Consolidated Revenue Funds.

(A) Receipts.

1. **Sources of Revenue.**—The principal sources of State revenue are :—

(a) Taxation.
(b) The public works and services controlled by the State Governments.
(c) Sale of and rental from Crown lands.
(d) The Commonwealth subsidy.
(e) Miscellaneous sources, comprising fines, fees, interest, etc.

Of these sources, that yielding the largest revenue for the States as a whole is the group of public works and services, the principal contributor being the Government railways and tramways. Next in magnitude comes Taxation, followed in order by the Commonwealth Subsidy and Land Revenue.

2. **Amount Collected.**—The following table furnishes particulars of the total amount of consolidated revenue received by the several States during the five years 1915–16 to 1919–20 :—

STATE REVENUE, 1915–16 TO 1919–20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1915–16	19,629,442	11,470,875	7,706,365	4,356,967	5,356,978	1,376,493	49,897,120
1916–17	20,537,835	11,813,879	7,880,893	4,874,603	4,577,007	1,369,368	51,053,585
1917–18	21,577,229	12,672,787	8,491,482	5,526,226	4,622,536	1,503,047	54,393,307
1918–19	23,448,166	13,044,088	9,415,543	5,798,313	4,944,850	1,581,984	58,232,944
1919–20	28,650,496	15,866,184	11,293,743	6,582,788	5,863,501	1,815,031	70,071,743

The figures given in this table relate in each instance to the financial year ended 30th June.

During the five years from 30th June, 1915, to 30th June, 1920, the aggregate revenues of the States increased by no less a sum than £20,174,623, or about 40 per cent. Increases were in evidence in all the States, the largest being that of £9,021,054 in New South Wales. This general advance is the more notable since, during recent years, a much smaller amount has been received from the Commonwealth, in the way of subsidy, than was the case up to 1910.

3. **Revenue per Head.**—Details concerning the revenue per head of population, collected in the several States of the Commonwealth during the five years 1915–16 to 1919–20, are furnished in the table given hereunder. It will be seen that throughout the period Western Australia has collected by far the largest amount per head, and that Tasmania has collected the least.

STATE REVENUE PER HEAD OF POPULATION, 1915–16 TO 1919–20.

Year.	N.S.W.			Victoria.			Q'land.			S. Aust.			W. Aust.			Tasmania.			All States.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1915–16 ..	10	10	1	8	1	10	11	6	6	9	18	2	16	16	11	6	16	11	10	2	4
1916–17 ..	11	1	0	8	8	9	11	15	4	11	5	9	14	16	5	6	17	0	10	9	5
1917–18 ..	11	9	7	8	19	7	12	6	8	12	13	4	14	18	9	7	8	0	11	0	5
1918–19 ..	12	3	0	9	2	4	13	11	2	13	0	2	15	15	6	7	11	6	11	11	6
1919–20 ..	14	6	1	10	12	1	15	11	5	14	1	2	17	13	7	8	7	5	13	7	1

In all the States, during the period, with the exception of Western Australia, there has been a marked increase in the State revenue collections per head, the most noticeable advance being in the case of Queensland. Western Australia throughout the period has led the other States, and in 1919-20 the revenue per head in that State exceeded the Commonwealth average by about 32 per cent.

4. Details for 1919-20.—Classifying the revenue of the several States in the manner indicated in § 2 (A) 1 above, particulars for the year 1919-20 are as follows:—

DETAILS OF STATE REVENUE, 1919-20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
Taxation ..	4,962,518	3,159,767	3,323,745	1,391,830	844,197	609,576	14,291,633
Public works and services ..	18,515,785	9,043,647	5,093,239	3,841,244	3,181,937	623,528	40,299,380
Land	1,915,439	377,633	1,290,198	270,881	408,800	100,024	4,362,975
Commonwealth subsidy	2,472,717	1,847,085	892,836	578,094	569,005	(a)357,630	6,717,367
Miscellaneous ..	784,037	1,438,052	693,725	500,730	859,562	124,273	4,400,388
Total ..	28,650,496	15,866,184	11,293,743	6,582,788	5,863,501	1,815,031	70,071,743

(a) Including special grant of £90,000.

It will be noted that the amounts returned under the heading "Commonwealth subsidy" do not always agree with those given in the chapter on Commonwealth Finance, page 689. This arises from the fact that the State figures shew the amount for which credit was taken by the State during the financial year 1919-20, whilst the Commonwealth figures show the amounts paid to State Treasurers on account of that financial year.

5. Revenue per Head, 1919-20.—Particulars concerning the revenue per head of population in each State derived from the several sources enumerated in the preceding paragraph are given hereunder:—

STATE REVENUE FROM VARIOUS SOURCES PER HEAD OF POPULATION, 1919-20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Taxation ..	2 9 7	2 2 3	4 11 8	2 19 5	2 10 11	2 16 3	2 14 6
Public Works and services ..	9 4 11	6 0 11	7 0 6	8 4 1	9 11 10	2 17 7	7 13 7
Land	0 19 1	0 5 0	1 15 7	0 11 7	1 4 8	0 9 3	0 16 7
Commonwealth subsidy	1 4 8	1 4 8	1 4 7	1 4 8	1 14 4	1 12 10	1 5 8
Miscellaneous ..	0 7 10	0 19 3	0 19 1	1 1 5	2 11 10	0 11 6	0 16 9
Total ..	14 6 1	10 12 1	15 11 5	14 1 2	17 13 7	8 7 5	13 7 1

The magnitude of the revenue per head from public works and services in the case of Western Australia is mainly due to the fact that the number of miles of railway in that State is large compared with the population, while the revenue-earning power of the railways is also high.

6. Relative Importance of Sources of Revenue.—The following table furnishes an indication of the relative importance of the different sources of revenue in the several

States, the figures given being the percentage which each item of revenue bears to the total for the State for the year 1919–20 :—

PERCENTAGE OF ITEMS ON TOTAL STATE REVENUE, 1919-20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Taxation	17.33	19.92	29.43	21.14	14.40	33.59	20.40
Public works and services ..	64.63	57.00	45.10	58.35	54.27	34.35	57.51
Land	6.70	2.38	11.42	4.12	6.97	5.51	6.23
Commonwealth subsidy ..	8.63	11.64	7.91	8.78	9.70	19.70	9.58
Miscellaneous	2.71	9.06	6.14	7.61	14.66	6.85	6.28
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

7. *State Taxation.*—*(a) Details, 1919–20.* Prior to the inauguration of Federation the principal source of revenue from taxation was the return from duties of Customs and Excise. At the present time the most productive form of State taxation is the income tax, which is now imposed in all the States (Western Australia, the last of the States to adopt this method of taxation, having passed the necessary legislation during the Parliamentary session of 1907). For 1919–20 probate and succession duties and stamp duties occupied second place. In addition to these a State land tax and licence fees of various kinds are now collected in all the States, while a dividend tax is levied in Western Australia. The total revenue from taxation collected by the States during the year 1919–20 was £14,291,633, details of which are set forth in the table given hereunder :—

STATE REVENUE FROM TAXATION, 1919-20.

Taxation.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Probate and succession duties	1,062,533	881,423	698,982 (incl. other stamp duties)	192,540	121,951	50,271	5,435,081 (incl. other stamp duties)
Other stamp duties ..	978,343	822,489		325,034	173,541	128,574	
Land Tax	2,834	314,217	459,188	146,336	46,415	87,785	1,056,775
Income Tax	2,808,267	915,551	2,023,916	662,364	416,186	279,476	6,605,130
Licences	183,455	213,204	86,068	34,905	40,242	23,213	581,087
Other Taxation	427,086	12,883	56,791	30,631	45,912	40,257	613,560
Total	4,962,518	3,159,767	3,323,745	1,391,830	844,197	609,576	14,291,633

(b) Summary, 1915–16 to 1919–20. The total amount raised by means of taxation by the several State Governments during the five years 1915–16 to 1919–20 is given in the following table :—

STATE REVENUE FROM TAXATION, 1915-16 TO 1919-20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
1915–16 ..	3,117,221	2,074,839	1,455,358	701,511	407,997	384,820	8,141,746
1916–17 ..	3,629,404	2,237,016	1,564,044	726,645	402,336	438,632	8,998,077
1917–18 ..	3,860,501	2,310,723	1,761,232	1,016,887	449,457	533,383	9,932,183
1918–19 ..	4,083,990	2,744,946	2,772,269	1,185,451	629,061	555,537	11,971,254
1919–20 ..	4,962,518	3,159,767	3,323,745	1,391,830	844,197	609,576	14,291,633

During the period between 30th June, 1915, and 30th June, 1920, the aggregate State revenue from taxation increased by about 75 per cent., the increase varying considerably in the several States. The remarkable increase of the last five years in New South Wales is due principally to the broadening of the basis of the State Income Tax, and increased receipts from Stamp Duties. Queensland collected a land tax for the first time in 1915–16, and substantially increased the income tax in 1918–19. Tasmania imposed in 1917–18 a super tax on incomes, and a tax on motor vehicles. The total increase in State taxation for the year 1919–20 amounted to £2,320,379, or nearly 20 per cent.

The revenue from State taxation per head of population, collected in the several States during each of the years 1915–16 to 1919–20, was as follows :—

STATE TAXATION PER HEAD, 1915–16 TO 1919–20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1915–16 ..	1 13 4	1 9 3	2 2 9	1 11 11	1 5 8	1 18 3	1 13 0
1916–17 ..	1 19 1	1 12 0	2 6 9	1 13 8	1 6 1	2 3 11	1 16 11
1917–18 ..	2 1 1	1 12 9	2 11 2	2 6 7	1 9 1	2 12 6	2 0 3
1918–19 ..	2 2 4	1 18 4	3 19 10	2 13 2	2 0 2	2 13 2	2 7 7
1919–20 ..	2 9 7	2 2 3	4 11 8	2 19 5	2 10 11	2 16 3	2 14 6

Taking the States as a whole, the State taxation increased by 21s. 6d. per head during the period from 1915–16 to 1919–20, the most marked increase occurring in the case of Queensland. Most of the advance took place in the last two years, and was chiefly due to the Land Tax.

8. **Commonwealth and State Taxation.**—For the purpose of obtaining an accurate view of the extent of taxation imposed on the people of the Commonwealth by the central governing authorities, it is necessary to add together the Commonwealth and State collections. This has been done in the table given hereunder, which contains particulars concerning the total taxation for each of the years 1915–16 to 1919–20, as well as the amount per head of population :—

COMMONWEALTH AND STATE TAXATION, 1915–16 TO 1919–20.

Particulars.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£
Commonwealth taxation ..	23,533,529	24,527,040	24,606,743	32,864,486	41,847,692
State taxation	8,141,746	8,998,077	9,932,183	11,971,254	14,291,633
Total	31,675,275	33,525,117	34,538,926	44,835,740	56,139,325
Taxation per head ..	£6/8/5	£6/17/6	£7/0/0	£8/18/3	£10/14/0

Whilst the Commonwealth taxation increased during the period by £18,314,163, the State taxation advanced by £6,149,887, the aggregate increase being £24,464,050. The amount *per capita* of total taxation remained fairly constant for some years previous to 1915–16, at an average of about £4 15s. In the last five years, however, it has reached

an extremely high amount, owing to the imposition of fresh direct taxation by the Commonwealth Government. The large increase in Commonwealth taxation in recent years is mainly due to the appearance of the Federal income tax, Federal succession duties, War-time profits, and other taxes.

The subject of taxation is treated in greater detail, and a schedule of rates is given at the end of this Section.

9. **Public Works and Services.**—A very large proportion of the revenue of all the States of the Commonwealth is made up of the receipts from the various public works and services under the control of the several Governments. The principal of these are railways and tramways, harbour works, and water supply and sewerage, while in addition, State batteries for the treatment of auriferous ores exist in Western Australia, and various minor revenue-producing services are rendered by the Governments of all the States. For the year 1919–20 the aggregate revenue from these sources totalled £40,299,380, or nearly 57½ per cent. of the revenue from all sources. Details of revenue from public works and services for the year 1919–20 are as follows :—

STATE REVENUE FROM PUBLIC WORKS AND SERVICES, 1919–20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Railways and tramways ..	15,907,584	8,081,047	4,936,496	2,698,402	2,463,134	507,523	34,685,086
Harbour services ..	771,276	113,049	41,581	405,940	157,687	..	1,489,533
Public batteries ..	..	650	..	..	49,066	..	49,716
Water supply and sewerage	1,309,146	(a)270,377	..	319,837	361,582	..	2,260,942
Other public services ..	437,779	577,624	115,162	417,065	150,468	116,005	1,814,103
Total	18,515,785	9,043,647	5,093,239	3,841,244	3,181,937	623,528	40,299,380

(a) Water supply only.

10. **Land Revenue.**—The revenue derived by the States from the sale and rental of Crown lands has, with few exceptions, been treated from the earliest times as forming part of their respective Consolidated Revenue Funds, and has been applied to meet ordinary current expenses. Where the rentals received are for lands held for pastoral or for residential purposes, such application of the revenue appears perfectly justifiable. On the other hand, where the rentals are those of mineral and timber lands, and in all cases of sales of lands, such a proceeding is essentially a disposal of capital in order to defray current expenses and as a matter of financial procedure is open to criticism. In the following table particulars of revenue derived from sales and rental of Crown lands are given for the year 1919–20 :—

STATE LAND REVENUE, 1919–20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Sales ..	1,125,703	198,238	380,034	116,043	330,740	61,936	2,212,694
Rentals ..	789,736	179,395	910,164	154,838	78,060	38,088	2,150,281
Total ..	1,915,439	377,633	1,290,198	270,881	408,800	100,024	4,362,975

11. **Commonwealth Subsidy.**—The payments to the States of Commonwealth subsidy represent in each instance a considerable proportion of the States' revenue, and for the year 1919–20 aggregated £6,717,367. This represents a great decline from the amounts

received up to 1910, owing to the new system of allotting the subsidy. The percentage which the subsidy received by each State for 1919–20 was of the total revenue of that State is shewn in the following table :—

COMMONWEALTH SUBSIDY PAID TO STATES DURING 1919–20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Commonwealth subsidy	2,472,716	1,847,085	892,836	578,094	569,005	(a)357,630	6,717,367
Total revenue ..	28,650,496	15,866,184	11,293,743	6,582,788	5,863,501	1,815,031	70,071,743
	%	%	%	%	%	%	%
Percentage of subsidy on revenue	8.63	11.64	7.91	8.78	9.70	19.70	9.58

(a) Including special grant of £90,000.

The amount of subsidy here shewn is that for which the several States took credit during the year 1919–20. (See also page 703.)

12. **Miscellaneous Items of Revenue.**—In addition to the foregoing sources of revenue there are in each State several miscellaneous ones, including such items as interest, fines, fees, etc., which for the year 1919–20 aggregated £4,400,388.

(B) Disbursements.

1. **Heads of Expenditure.**—The principal heads of State expenditure from Consolidated Revenue Funds are :—

(a) Interest and sinking funds in connexion with public debt.
(b) Working expenses of railways and tramways.
(c) Justice.
(d) Police.
(e) Penal establishments.
(f) Education.
(g) Medical and charitable expenditure.
(h) All other expenditure.

Of these items, that of working expenses of railways and tramways was the most important, and for the year 1919–20 represented about 38 per cent. of the aggregate expenditure from the Consolidated Revenue Fund. Next in order for that year was the item of interest and sinking fund in connexion with the public debt, then education, medical and charitable expenditure, and police in the order named.

2. **Total Expenditure.**—The total expenditure from Consolidated Revenue Funds in the several States during each of the years 1915–16 to 1919–20 is furnished in the table given hereunder :—

STATE EXPENDITURE, CONSOLIDATED REVENUE FUNDS, 1915–16 TO 1919–20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1915–16	18,931,814	11,683,363	7,671,573	4,741,377	5,705,201	1,340,711	50,074,039
1916–17	20,806,633	11,795,295	8,134,387	5,190,453	5,276,764	1,412,893	52,616,425
1917–18	21,553,405	12,631,169	8,900,934	5,500,419	5,328,279	1,459,748	55,373,954
1918–19	23,233,398	13,023,407	9,587,532	5,876,811	5,596,864	1,644,512	58,962,524
1919–20	30,210,013	15,752,459	11,266,910	6,457,039	6,531,725	1,828,301	72,046,447

As in the case of the table previously given for revenue, the above figures relate to the year ended 30th June.

3. Expenditure per Head.—Owing to the varying conditions of the several States and the extent to which the different functions of Government are distributed therein between central and local governing authorities, the expenditure per head from Consolidated Revenue Funds differs materially in the several States, being highest in the case of Western Australia and lowest in that of Tasmania. The expenditure per head of population for each State for the years 1915–16 to 1919–20 is as follows :—

STATE EXPENDITURE PER HEAD, 1915–16 TO 1919–20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1915–16	10 2 7	8 4 10	11 5 6	10 15 8	17 18 10	6 13 4	10 3 1
1916–17	11 3 11	8 8 6	12 3 0	12 0 5	17 1 9	7 1 4	10 15 10
1917–18	11 9 3	8 19 0	12 18 6	12 12 2	17 4 5	7 3 8	11 4 5
1918–19	12 0 9	9 2 0	13 16 2	13 3 8	17 17 1	7 17 6	11 14 5
1919–20	15 1 8	10 10 6	15 10 8	13 15 9	19 13 10	8 8 9	13 14 7

The total expenditure per head has increased every year in the period under review, although there have been fluctuations in the individual States.

4. Details of Expenditure for 1919–20.—The following table furnishes for the year 1919–20 particulars as to the expenditure of the several States under each of the principal heads :—

DETAILS OF STATE EXPENDITURE, 1919–20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Public debt (interest, sinking fund, etc.) ..	6,062,079	3,608,493	2,665,548	1,736,590	2,067,541	700,582	16,840,833
Railways and tramways (working expenses) ..	12,112,917	6,042,136	4,321,726	2,061,322	2,245,562	431,872	27,215,535
Justice	411,297	194,149	143,824	54,965	71,780	14,169	890,184
Police	900,234	500,750	407,480	157,168	141,879	66,940	2,174,451
Penal establishments ..	92,781	61,947	36,802	26,827	25,791	7,622	251,770
Education	2,343,766	1,462,404	971,291	463,435	433,540	178,440	5,852,876
Medical and charitable ..	1,241,465	857,541	874,938	307,539	399,806	144,081	3,825,370
All other expenditure ..	7,045,474	3,025,039	1,845,301	1,649,193	1,145,826	284,595	14,995,428
Total	30,210,013	15,752,459	11,266,910	6,457,039	6,531,725	1,828,301	72,046,447

5. Expenditure per Head, 1919–20.—The expenditnre per head of population of the several States for the year 1919–20 under each of the principal items, is given hereunder :—

STATE EXPENDITURE PER HEAD, 1919–20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Public debt (interest, sinking fund, etc.) ..	3 0 6	2 8 3	3 13 6	3 14 2	6 4 8	3 4 8	3 4 2
Railways and tramways (working expenses) ..	6 1 0	4 0 9	5 19 2	4 8 1	6 15 5	1 19 10	5 3 9
Justice	0 4 1	0 2 7	0 4 0	0 2 4	0 4 4	0 1 4	0 3 5
Police	0 9 0	0 6 8	0 11 3	0 6 8	0 8 7	0 6 2	0 8 3
Penal establishments ..	0 0 11	0 0 10	0 1 0	0 1 2	0 1 6	0 0 8	0 1 0
Education	1 3 5	0 19 6	1 6 9	0 19 9	1 6 2	0 16 6	1 2 3
Medical and charitable ..	0 12 5	0 11 6	1 4 1	0 13 2	1 4 1	0 13 4	0 14 7
All other expenditure ..	3 10 4	2 0 5	2 10 11	3 10 5	3 9 1	1 6 3	2 17 2
Total	15 1 8	10 10 6	15 10 8	13 15 9	19 13 10	8 8 9	13 14 7

6. **Relative Importance.**—The relative importance of the items of expenditure enumerated above varies considerably in the several States. This will readily be seen from the following table, giving for each State the percentage of the expenditure under the various items, on the total expenditure for the State :—

PERCENTAGE OF ITEMS ON TOTAL STATE EXPENDITURE, 1919-20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Public debt (interest, sinking fund, etc.)	20.07	22.90	23.66	26.80	31.06	38.32	23.37
Railways and tramways (working expenses)	40.09	38.35	38.35	31.93	34.39	23.62	37.78
Justice	1.36	1.23	1.28	0.85	1.10	0.78	1.24
Police	2.98	3.18	3.61	2.43	2.17	3.06	3.02
Penal establishments	0.31	0.40	0.33	0.42	0.39	0.42	0.35
Education	7.76	9.29	8.62	7.18	6.63	9.76	8.12
Medical and charitable	4.11	5.45	7.77	4.76	6.12	7.88	5.31
All other expenditure	23.32	19.20	16.38	25.54	17.54	15.56	20.81
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Taken together, the interest and sinking fund on the public debt, and the working expenses of the railways and tramways, represented for the year 1919-20 about 60 per cent. of the aggregate State expenditure, a proportion which has been maintained with great regularity for many years past.

(C) Balances.

1. **Position on 30th June, 1920.**—On various occasions in each of the States the revenue collected for a financial year has failed to provide the funds requisite for defraying the expenditure incurred during that year, the consequence being a deficit which is usually liquidated either by cash obtained from trust funds, or by the issue of Treasury bills. In some of the States a number of such deficits has occurred, interspersed with occasional surpluses, the result being an accumulating overdraft, which in certain instances assumed very large proportions. Thus, during the period of financial stress resultant upon the crisis of 1893 and the drought conditions of succeeding years, the accumulated overdrafts of several of the States grew very rapidly, and the situation has changed very much for the worse in the years preceding 1919-20, so that not one of the States now has a credit balance. The position of the balances of the several Consolidated Revenue Funds on 30th June, 1920, was as follows :—

STATE CONSOLIDATED REVENUE FUND BALANCES, 30th JUNE, 1920.

State.	Cash Credit Balances.	Debit Balance.		Net Result.
		Cash Overdraft.	Overdraft liquidated by Treasury Bills.	
	£	£	£	£
New South Wales	..	1,804,062	..	*Dr.* 1,804,062
Victoria	..	150,197	1,253,286	*Dr.* 1,403,483
Queensland	..	554,606	..	*Dr.* 554,606
South Australia	..	1,097,649	..	*Dr.* 1,097,649
Western Australia	..	1,320,239	2,766,466	*Dr.* 4,086,705
Tasmania	..	145,011	..	*Dr.* 145,011
Total	..	5,071,764	4,019,752	*Dr.* 9,091,516

(D) Principal State Taxes.

(a) Probate and Succession Duties.

1. **General.**—Probate duties have been levied for a considerable time in all the States of the Commonwealth. From the provisions of the several State Acts governing the payment of duty, it will be seen that both the ordinary rates and those which apply to special beneficiaries differ widely in several cases. A table shewing the values of the estates in the various States in which probates and letters of administration were granted is shown hereinafter. (See Section XXIII. § 5 (4).)

The duty collected in the several States for the financial years 1915-16 to 1919-20 is as follows:—

AMOUNT OF PROBATE AND SUCCESSION DUTIES COLLECTED, 1915-16 TO 1919-20.

State.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
New South Wales	645,554	826,769	677,433	575,875	1,062,533
Victoria	510,032	546,400	506,662	718,194	881,423
Queensland	136,277	146,077	121,986	(a)	(a)
South Australia	183,919	134,620	170,185	221,729	192,540
Western Australia	44,284	40,963	38,710	40,329	121,951
Tasmania	36,700	37,310	50,688	64,410	50,271
Total	1,556,766	1,732,139	1,565,664	1,620,537 (b)	2,308,718 (b)

(a) Included in Stamp Duties. (b) Excluding Queensland.

(b) Stamp Duties.

1. **Revenue.**—The revenue derived by the several States of the Commonwealth from stamp duties for the years 1915-16 to 1919-20 is shewn in the accompanying table:—

STAMP REVENUE (EXCLUSIVE OF PROBATE AND SUCCESSION DUTIES), 1915-16 TO 1919-20.

State.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
New South Wales	522,992	550,211	616,180	687,304	978,343
Victoria	400,056	376,196	507,573	583,818	822,489
Queensland	185,734	175,186	205,674	a 387,742	a698,382
South Australia	114,169	145,079	179,521	213,130	325,034
Western Australia	64,858	67,035	80,720	112,104	173,541
Tasmania	69,888	77,636	96,215	96,949	128,574
Total	1,357,697	1,391,343	1,685,883	2,081,047	3,126,363

(a) Including Queensland probate and succession duties.

2. **Bank Notes.**—Promissory notes issued by any bank were not required to bear a duty stamp either impressed or adhesive, and might be re-issued as often as thought fit. An annual composition was, however, paid in lieu of stamp duty up to 1910. This

composition was payable quarterly, and was the same in all States, being at the rate of £2 per annum on every £100 or part thereof of the average annual amount of bank notes in circulation. On 2nd June, 1893, the Treasury Notes Act of Queensland became law, by which the issue of Treasury notes payable on demand was authorized. These *notes were used exclusively by the banks in that State, but their issue was prohibited* by the Federal Bank Note Tax Act, and they have now passed out of circulation. (See Section XXI., Private Finance.)

The issue of bank notes by the banks has practically ceased owing to this Act, which passed the Federal Parliament in the session of 1910, and was assented to on 10th October, 1910. Further reference is made to the Act in the section dealing with Private Finance. It is sufficient to say here that it imposed a tax of 10 per cent. per annum on all bank notes issued or re-issued by any bank in the Commonwealth after the commencement of the Act and not redeemed.

(c) Land Tax.

1. **General.**—All the States now impose a Land Tax, although Queensland, the last State to fall into line, only collected its first levy in 1915-16. Western Australia imposed its first tax in 1907, but in the other States the impost is of very long standing.

The following table shews the amount collected by means of such taxes during the financial years 1915-16 to 1919-20:—

STATE LAND TAX COLLECTIONS, 1915-16 TO 1919-20.

State.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
New South Wales	3,190	3,215	2,921	2,800	2,834
Victoria	352,353	369,486	353,156	324,232	314,217
Queensland	247,044	362,535	344,547	578,253	459,188
South Australia	154,483	139,372	165,469	154,621	146,336
Western Australia	47,716	42,431	63,388	34,182	46,415
Tasmania	82,436	83,595	84,701	86,705	87,785
Total	887,222	1,000,634	1,014,182	1,180,793	1,056,775

(d) Income Tax.

1. **General.**—A duty on the income of persons, whether it be derived from personal exertion or from property, is now imposed in all the States of the Commonwealth. As might be expected, the rates, exemptions, etc., are widely divergent in the different States, but the general principles of the several Acts are similar. The Dividend Duties Acts of Queensland and Western Australia—the former of which is now repealed—supplied to a certain extent the place of an income tax in those States in former years, but, with the increasing demands upon the State Treasury, the levying of a direct income tax has been found necessary.

In the following table particulars are furnished concerning the total amount collected in the several States during the years 1915-16 to 1919-20. In the case of Western Australia the amount of dividend duty collected is included, this tax being closely allied to the income tax.

STATE INCOME AND DIVIDEND TAXES, 1915-16 TO 1919-20.

State.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
New South Wales	1,707,403	1,973,477	2,182,117	2,355,243	2,308,267
Victoria	702,745	766,746	773,468	928,210	915,551
Queensland	766,560	756,292	967,420	1,677,335	2,023,316
South Australia	212,418	264,946	452,303	542,007	662,384
Western Australia	195,249	196,221	207,963	359,623	416,136
Tasmania	177,730	216,278	259,869	261,028	279,476
Total	3,762,105	4,173,960	4,843,140	6,123,446	6,605,130

§ 3. Trust Funds.

1. **Nature.**—In addition to the moneys received by the several State Governments as revenue, and paid to the credit of their respective Consolidated Revenue Funds, considerable sums are held by the Governments in trust for various purposes. One of the chief sources of these trust funds is the State Savings Bank, which exists in each State either as a Government department or under the control of a Board acting under Government supervision or Government guarantee. In most of the States also, sinking funds for the redemption of public debt are provided, and the moneys accruing thereto are paid to the credit of the appropriate trust funds. A similar course is followed in the case of municipal sinking funds placed in the hands of the Government. In all the States except New South Wales, life assurance companies carrying on business are required to deposit a substantial sum in cash or approved securities with the Government, and these deposits go to further swell the trust funds. Various other deposit accounts, superannuation funds, suspense accounts, etc., find a place in these funds. The trust funds have at various times enabled the several State Treasurers to tide over awkward financial positions, but the propriety of allowing deficits to be frequently liquidated in this manner is open to question.

2. **Extent of Funds.**—The amount of such funds held by the several State Governments on 30th June, 1920, was as follows :—

STATE TRUST FUNDS ON 30th JUNE, 1920.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
Amount of trust funds	9,848,520	12,540,845	*Dr.* 494,049	2,335,979	15,902,077	1,023,968	41,157,340

§ 4. Loan Funds.

1. **Nature.**—As early in the history of Australia as 1842 it was deemed expedient to supplement the revenue collections by means of borrowed moneys, the earliest of the loans so raised being obtained by New South Wales for the purpose of assisting immigration, at rates of interest varying from 2½d. to 5½d. per £100 per diem, or approximately from 4¼ per cent. to 8 per cent. per annum. The principal reason for Australian public borrowing, however, has been the fact that the Governments of the several States have, in addition to ordinary administrative duties, undertaken the performance of many functions which, in other countries, are usually entrusted to local authorities, or left to the initiative of private enterprise. Principal amongst these have been the construction of railways and the control of the railway systems

of the several States, while the assumption by the State Governments of responsibilities in connexion with improvements to harbours and rivers, as well as the construction of works for the purposes of water supply and sewerage, have materially swelled the amounts which it has been considered expedient to obtain by means of loans. *The Australian State loan expenditure and public debt thus differ very materially from* those of most European countries, and also from those of the Commonwealth, where such expenditure was very largely incurred for purposes of defence, or absorbed in the prosecution of war. The State debts of Australia, on the other hand, consist in the main of moneys raised and expended with the object of assisting the development of the resources of the Commonwealth, and are, to a very large extent, represented by tangible assets such as railways, tramways, waterworks, etc.

2. **Loan Expenditure, 1919–20.**—During the year ended 30th June, 1920, the actual expenditure of the Australian States from loan funds amounted to £28,679,932, New South Wales with a total of £8,794,905 being the principal contributor to this amount. The expenditure on railways and tramways is a very heavy item, but the main cause of this large expenditure is the settlement of returned soldiers upon the land. Details for the year for each State are given in the following table :—

STATE LOAN EXPENDITURE, 1919–20.

Heads of Expenditure.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Railways and tramways ..	2,589,955	982,182	2,579,861	236,925	121,149	91,221	6,601,293
Water supply and sewerage	2,041,122	570,028	96,684	911,293	47,080	..	3,666,207
Harbours, rivers, etc. / Roads and bridges	453,006	624,310	..	221,444	116,714	97,954	1,513,428
Public buildings	75,735	18,223	168,583	24,211	10,602	52,344	349,698
Development of mines, etc.	..	(a) 14	..	..	32,670	..	32,656
Advances to settlers ..	19,859	68,391	..	2,035,903	1,784,100	(a) 10,427	3,897,826
Land purchases for settlement	1,000,000	5,204,308	825,088	(a) 5,342	287,415	955,092	8,266,561
Loans to local bodies ..	(a) 1,535	..	849,209	..	..	(a) 107,828	739,846
Rabbit-proof fences ..	26,187	..	85	(a) 20,269	..	..	6,003
Other public works and purposes	2,590,576	133,838	278,355	42,452	263,589	297,604	3,606,414
Total	8,794,905	7,601,266	4,797,865	3,446,617	2,663,319	1,375,960	28,679,932

(a) Repayment.

3. **Aggregate Loan Expenditure.**—The total loan expenditure of the Australian States from the initiation of the borrowing system to the 30th June, 1920, has amounted to no less a sum than £423,022,779. The manner in which this sum has been spent in the several States is furnished in the following table :—

AGGREGATE STATE LOAN EXPENDITURE TO 30th JUNE, 1920.

Heads of Expenditure.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Railways and tramways ..	93,036,681	56,533,093	41,559,988	21,199,834	18,078,082	5,596,966	236,004,664
Telegraphs and telephones	1,761,845	..	996,587	991,773	..	..	3,750,205
Water supply and sewerage	28,005,707	13,373,733	3,604,114	10,691,432	4,978,945	..	60,653,931
Harbours, rivers, etc. / Roads and bridges	17,390,202	3,491,319	3,353,139	5,637,267	4,204,499	5,057,866	39,134,292
Defence	1,457,536	149,323	363,084	291,615	..	128,224	2,389,782
Public buildings ..	8,720,923	2,428,578	2,207,683	1,587,835	829,235	1,298,114	17,072,368
Immigration	569,930	..	2,763,070	..	400,517	235,000	3,968,517
Development of mines, etc.	..	510,645	..	5,111	1,777,402	..	2,293,158
Advances to settlers ..	86,261	947,306	..	5,859,197	2,886,419	93,094	9,872,277
Land purchases for settlement	1,489,000	11,673,642	..	1,976,869	2,555,753	1,576,749	19,272,013
Loans to local bodies ..	(a) 9,111	..	2,995,560	..	64,491	1,234,022	4,284,962
Rabbit-proof fences ..	78,849	..	..	243,966	328,703	..	651,518
Other public works and purposes	3,988,121	6,210,911	3,658,264	3,709,900	4,324,504	1,783,392	23,675,092
Total	156,575,944	95,318,550	61,501,489	52,194,799	40,428,550	17,003,447	423,022,779

(a) Repayment.

It must be noted that the figures furnished in this table represent the amounts actually spent, and consequently differ somewhat from those given later in the statements relating to the public debt, which represent amount of loans still unpaid at a given date. The loan expenditure statement includes all such expenditure, whether the loans by means of which the necessary funds were raised have been repaid or are still in existence. On the other hand, in the public debt statement loans repaid are excluded, but in the case of loans still outstanding each is shewn according to the amount repayable at maturity, not according to the amount originally available for expenditure.

4. **Relative Importance of Loan Items.**—The relative importance of the different items of loan expenditure given in the foregoing table varies considerably in the several States. The following table gives for each State the percentage of each item on the total loan expenditure of that State to 30th June, 1920:—

PERCENTAGE OF EACH ITEM ON TOTAL LOAN EXPENDITURE OF THE STATES TO 30th JUNE, 1920.

Heads of Expenditure.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Railways and tramways ..	59.42	59.31	67.58	40.62	44.72	32.92	55.78
Telegraphs and telephones ..	1.12	..	1.63	1.90	..	..	0.89
Water supply and sewerage ..	17.89	14.03	5.86	20.48	12.31	..	14.34
Harbours, rivers, etc. } Roads and bridges }	11.11	3.66	5.45	10.80	10.40	29.74	9.25
Defence	0.93	0.16	0.59	0.56	..	0.75	0.56
Public buildings	5.57	2.55	3.59	3.04	2.05	7.63	4.04
Immigration	0.36	..	4.49	..	0.99	1.38	0.95
Development of mines, etc.	..	0.54	..	0.01	4.40	..	0.54
Advances to settlers ..	0.05	0.99	..	11.22	7.14	0.55	2.33
Land purchases for settlement	0.95	12.24	..	3.79	6.32	9.28	4.56
Loans to local bodies ..	0.00	..	4.87	..	0.16	7.26	1.01
Rabbit-proof fences ..	0.05	..	..	0.47	0.81	..	0.15
Other public works and purposes	2.55	6.52	5.94	7.11	10.70	10.49	5.60
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

5. **Loan Expenditure in Successive Years.**—In the following table are given particulars relative to the loan expenditure of the several States during each of the years 1915–16 to 1919–20:—

STATE LOAN EXPENDITURE, 1915–16 TO 1919–20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1915–16..	8,173,104	4,473,569	3,061,839	2,097,197	1,584,643	880,394	20,270,746
1916–17..	6,862,179	2,440,966	2,267,962	1,811,531	855,184	476,472	14,714,294
1917–18..	4,487,511	1,931,679	1,828,320	1,586,766	1,054,177	518,929	11,407,382
1918–19..	3,918,887	2,932,521	2,736,412	2,006,166	1,049,736	575,054	13,218,776
1919–20..	8,794,905	7,601,266	4,797,865	3,446,617	2,663,319	1,375,960	28,679,932

Throughout the five years under review the loan expenditure of New South Wales exceeded that of any other of the States, and for many years has represented on the average about 35 per cent. of the aggregate of Australia.

6. Loan Expenditure per Head.—The loan expenditure per head of population varies materially in the different States and in different years, reaching its highest point for the five years under review in Western Australia in 1919–20 with £8 0s. 7d. per head, and its lowest in Victoria in 1917–18 with 27s. 5d. per head. Particulars concerning the loan expenditure per head for the five years 1915–16 to 1919–20 are given hereunder:—

STATE LOAN EXPENDITURE PER HEAD, 1915–16 TO 1919–20.

Year.	N.S.W.			Victoria.			Q'land.			S. Aust.			W. Aust.			Tasmania.			All States.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1915–16 ..	4	7	6	3	3	1	4	10	0	4	15	5	4	19	8	4	7	7	4	2	2
1916–17 ..	3	13	10	1	14	10	3	7	9	4	3	11	2	15	4	2	7	8	3	0	4
1917–18 ..	2	7	9	1	7	5	2	13	1	3	12	9	3	8	2	2	11	1	2	6	3
1918–19 ..	2	0	7	2	0	10	3	18	10	4	10	0	3	7	0	2	15	1	2	12	7
1919–20 ..	4	7	10	5	1	7	6	12	4	7	7	3	8	0	7	6	7	0	5	9	4

§ 5. Public Debt.

1. Initiation of Public Borrowing.—The earliest of the loans raised in Australia for Government purposes was that obtained by New South Wales in 1842. This and nine other loans raised prior to 1855 were all procured locally. In the last-mentioned year Australia's first appearance on the London market occurred, the occasion being the placing of the first instalment of the New South Wales 5 per cent. loan for £683,300. Victoria first appeared as a borrower in 1854, and made its first appearance on the London market in 1859. In the remaining States the first public loans were raised in the following years:—Queensland 1861, South Australia 1854, Western Australia 1845, and Tasmania 1867.

2. Nature of Securities.—All the earlier loans raised by the Australian States were obtained by the issue of debentures, some of which were repayable at fixed dates, and others by annual or other periodical drawings. In more recent years, however, the issue of debentures has given place to a great extent to that of inscribed stock, the inscription in the case of local issues being carried out by the State Treasuries, and in the cases of loans floated in London being mainly performed by the Bank of England and the London County and Westminster Bank. The issue of debentures has not, however, been entirely discontinued, for within recent years debentures to a large amount have been placed on the market by the Government of New South Wales. In other States also, recent issues of debentures have taken place, the occasions usually being those in which the term of the loan is less than that ordinarily attaching to issues of inscribed stock. Another form of security is that variously known as the Treasury bill or Treasury bond. This is usually merely a short term debenture having a currency in most instances of from three to five years. The bonds are issued in certain cases to liquidate deficiencies in revenue, and in others to obtain moneys for the purpose of carrying on public works at a time when it is deemed inexpedient to place a permanent loan on the market. The amount of the public debt of the several States held in each of these forms of security is furnished in the table hereunder:—

PUBLIC DEBT OF THE AUSTRALIAN STATES, 30th JUNE, 1920.

State.	Debentures.	Inscribed Stock.	Treasury Bills.		Total Amount Outstanding.
			For Public Works and Services.	In aid of Revenue.	
	£	£	£	£	£
New South Wales	13,966,350	128,525,532	10,284,200	..	152,776,082
Victoria ..	28,419,107	55,023,347	2,952,000	1,253,285	87,647,739
Queensland ..	24,351,399	41,632,337	1,379,350	..	(a) 69,680,764
South Australia	2,013,000	34,299,121	7,441,025	..	43,753,146
Western Australia	1,424,455	35,856,576	5,140,370	2,893,505	(b) 46,822,003
Tasmania	2,070,264	13,559,774	1,000,000	..	16,630,038
Total ..	72,244,575	308,896,687	28,202,945	4,146,790	(a), (b) 417,309,772

(a) Including loans of £2,317,678 from the Commonwealth Government not represented by securities.
(b) Including advance of £1,501,097 from Commonwealth.

The manner in which the amount of public debt of the Australian States held under these various forms of security has grown during the past six years will be seen from the following table:—

PUBLIC DEBT OF THE AUSTRALIAN STATES, 1915-16 TO 1919-20.

Date.	Debentures.	Inscribed Stock.	Treasury Bills. For Public Works and Services.	Treasury Bills. In aid of Revenue.	Total Amount Outstanding.
	£	£	£	£	£
30th June, 1916 ..	51,069,616	277,268,688	27,074,647	2,400,820	357,813,771
,, 1917 ..	60,364,239	279,252,215	29,782,535	3,118,635	372,517,624
,, 1918 ..	63,616,822	296,459,069	28,468,060	3,996,210	392,540,161
,, 1919 ..	70,928,892	289,785,322	28,961,760	5,626,140	(a)396,356,149
,, 1920 ..	72,244,575	308,896,687	28,202,945	4,146,790	(b)417,309,772

(a) Including Queensland loan of £1,054,035 not represented by securities.
(b) Including Queensland and West Australian loans of £3,818,775 not represented by securities.

During the period between 30th June, 1916, and 30th June, 1920, the public debt of the States increased by £59,496,001, or at the rate of about £15,000,000 per annum.

3. Increase in Indebtedness of the Several States.—The table given hereunder furnishes particulars of the increase which has taken place during the past five years in the public debts of the several States:—

PUBLIC DEBT OF THE AUSTRALIAN STATES, 30th JUNE, 1916 TO 1920.

Date.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
30th June, 1916 ..	130,514,018	76,775,032	58,732,843	37,993,289	39,889,676	13,908,913	357,813,771
,, 1917 ..	138,138,347	78,125,395	61,303,136	39,364,280	40,914,826	14,671,640	372,517,624
,, 1918 ..	152,584,693	79,595,646	62,296,986	40,621,480	42,304,001	15,137,355	392,540,161
,, 1919 ..	147,174,536	82,031,929	65,581,121	42,650,206	43,637,076	15,281,281	396,356,149
,, 1920 ..	152,776,082	87,647,739	69,680,764	43,753,146	46,822,003	16,630,038	417,309,772

The State in which the greatest increase in indebtedness was experienced during the period is New South Wales, which added £22,262,064 during the period under review. On the other hand, the public debt of Tasmania increased by less than £3,000,000. There was an apparent decline in the Public Debt of New South Wales in 1918-19. This was due to the fact that the debt in 1917-18 included stock raised in February, 1918, for the redemption of loans maturing in September, 1918.

4. Indebtedness per Head.—The indebtedness per head of population varies considerably in the several States, being highest in the case of Western Australia, and lowest in that of Victoria. Details for the period from 30th June, 1916, to 30th June, 1920, are as follows:—

PUBLIC DEBT OF AUSTRALIAN STATES PER HEAD, 30th JUNE, 1916 TO 1920.

Date.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
30th June, 1916 ..	70 6 0	54 12 1	85 8 8	87 12 7	126 15 2	70 8 6	72 19 7
,, 1917 ..	73 18 6	55 14 0	89 19 7	91 11 4	132 12 3	74 7 0	76 1 9
,, 1918 ..	79 17 4	56 2 5	89 19 11	92 9 6	135 19 6	74 12 6	78 16 3
,, 1919 ..	74 19 4	55 18 3	92 0 0	93 11 2	135 0 2	72 9 4	77 2 1
,, 1920 ..	75 4 6	58 5 4	94 10 9	92 12 3	140 2 4	76 15 3	78 14 9

5. **Flotation of Loans.**—The early loans of the Australian States, usually for comparatively small amounts, were raised locally, but, with the increasing demand for loan funds and the more favorable terms offering in the London than in the local money market, the practice of placing Australian public loans in London came into vogue, and for many years local flotations, except for short terms or small amounts, were comparatively infrequent. In more recent years, however, the accumulating stocks of money in Australia seeking investment have led to the placing of various redemption and other loans locally, with very satisfactory results. In the following table are given particulars of loans of the several States outstanding on 30th June, 1920, which had been floated in London and Australia respectively:—

PUBLIC DEBT OF AUSTRALIAN STATES, 30th JUNE, 1920.

State.	Floated in London.		Floated in Australia.		Total Public Debt.
	Amount.	Percentage on Total Debt.	Amount.	Percentage on Total Debt.	
	£	%	£	%	£
New South Wales ..	101,977,445	66.75	50,798,637	33.25	152,776,082
Victoria	42,406,040	48.38	45,241,699	51.62	87,647,739
Queensland	54,330,647	77.97	15,350,117	22.03	69,680,764
South Australia ..	22,908,239	52.36	20,844,907	47.64	43,753,146
Western Australia ..	32,178,553	68.72	14,643,450	31.28	46,822,003
Tasmania	9,611,250	57.79	7,018,788	42.21	16,630,038
Total	263,412,174	63.12	153,897,598	36.88	417,309,772

The following table, giving corresponding particulars for the aggregate indebtedness of the Australian States at the end of each of the financial years 1915–16 to 1919–20, furnishes an indication of the rapidity with which the local holdings of Australian securities have grown in recent years:—

PUBLIC DEBT OF AUSTRALIAN STATES, 30th JUNE, 1916 TO 1920.

Date.	Floated in London.		Floated in Australia.		Total Public Debt.
	Amount.	Percentage on Total Debt.	Amount.	Percentage on Total Debt.	
	£	%	£	%	£
30th June, 1916 ..	232,040,101	64.85	125,773,670	35.15	357,813,771
„ 1917 ..	243,735,172	65.43	128,782,452	34.57	372,517,624
„ 1918 ..	261,107,683	66.52	131,432,478	33.48	392,540,161
„ 1919 ..	258,200,003	65.14	138,156,146	34.86	396,356,149
„ 1920 ..	263,412,174	63.12	153,897,598	36.88	417,309,772

It will be seen that in the course of five years the London indebtedness of the States has increased by £31,372,073, while the local indebtedness has increased by £28,123,928. In other words, the Australian proportion had on 30th June, 1920, grown to more than one-third, and has remained at about one-third for the last five years.

It will be noticed in the foregoing table that the Australian indebtedness of the States increased during the year 1919–20 to a figure absolutely higher than had ever before been attained. This was due, in the main, to an arrangement with the Commonwealth Government, which was concluded shortly after the outbreak of war. It seemed very probable, at that period, that London would be reluctant to make

advances for other than military purposes, and this would have seriously embarrassed several of the States which were committed to a vigorous public works and developmental policy. The Commonwealth Government met the situation by advancing £18,000,000 to five of the States in the following proportion:—New South Wales, £7,400,000; Victoria, £3,900,000; South Australia, £2,600,000; Western Australia, £3,100,000; and Tasmania, £1,000,000. Victoria contracted her portion of the debt in debentures, whereas the remaining States chose Treasury bills, but otherwise the conditions were the same. The Commonwealth Government paid the money in monthly instalments, and the rate of interest was fixed at 4⅛ per cent. The money was taken entirely from the Australian Notes Account, and the whole transaction furnishes another illustration of the increasingly intimate financial relationship between the Commonwealth and State Governments, to which reference was made in the preceding chapter, (page 691). Further advances were made to the States by the Commonwealth in 1916–19 out of the proceeds of loans contracted in London. The loans aggregated £16,750,000, and carried interest partly at 5¼ per cent., and partly at 5½ per cent. Lastly, advances have been made by the Commonwealth Government to some of the State Governments for the purpose of settling returned soldiers on the land, for the construction of silos for wheat storage, and for providing employment. By agreement between the State Treasurers and the Commonwealth Treasurer, the £18,000,000 already referred to is to be repaid within five years of the termination of the war, but not later than 1925.

6. **Rates of Interest.**—As mentioned above, the highest rate of interest paid in connexion with the earliest Australian public loans was fivepence farthing per £100 per diem, or, approximately, 8 per cent. per annum. At the present time the principal rates of interest payable on Australian public securities are 5¾ per cent., 5½ per cent., 5 per cent., 4½ per cent., 4⅛ per cent., 4 per cent., 3¾ per cent., 3½ per cent., and 3 per cent. It is most probable, however, that the amount of outstanding debt at the higher rates will increase materially in the future, since conversion can scarcely be effected at present at a lower rate of interest than 5½ per cent. The average rate payable on the aggregate indebtedness of the Australian States is about 4 per cent. For the separate States the average rate payable varies considerably, being lowest in the case of Western Australia and highest in that of New South Wales; the difference between these two average rates is about ⅓ per cent. In the table given hereunder particulars are furnished of the rates of interest payable on the public debt of the several States of the Commonwealth on 30th June, 1920:—

RATES OF INTEREST PAYABLE ON PUBLIC DEBT OF STATES, 30th JUNE, 1920.

Rate of Interest.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
%	£	£	£	£	£	£	£
6 ..	..	..	2,241,800	..	..	..	2,241,800
5¾ ..	18,076,000	..	..	..	1,500,000	..	19,576,000
5½ ..	13,270,464	5,554,000	4,195,700	7,415,450	3,050,500	1,847,375	35,333,489
5¼ ..	15,327,809	4,466,437	1,275,000	881,100	2,601,097	669,000	25,220,443
5 ..	6,745,282	5,867,005	333,600	5,221,533	622,210	1,905,262	20,692,892
4¾ ..	..	6,868,597	..	500,000	..	..	7,368,597
4½ ..	6,820,984	2,937,575	14,040,450	2,166,746	1,920,220	391,675	28,277,650
4⅜ ..	..	500,000	..	..	..	140,750	640,750
4⅛ ..	7,400,000	3,900,000	..	2,600,000	3,100,000	1,000,000	18,000,000
4 ..	28,143,541	15,370,867	18,667,450	7,764,025	12,710,486	4,727,267	87,383,636
3¾ ..	2,644,960	229,683	2,550,050	5,067,360	1,650,000	512,199	12,654,252
3½ ..	37,265,315	30,670,644	18,569,053	6,209,650	12,317,490	4,957,724	109,989,876
3 ..	17,047,072	9,977,329	5,489,383	5,927,282	7,350,000	476,786	46,269,852
Overdue ..	36,655	1,000	600	..	..	..	38,255
Total ..	152,776,082	(a)87,647,739	(b)69,680,764	43,753,146	46,822,003	16,630,038	417,309,772 (a) (b)
Average rate	£4/5/11	£4/0/11	£4/1/4	£4/4/1	£3/19/4	£4/3/4	£4/3/4

(a) Including £1,304,602 } rate not settled.
(b) Including £2,817,678 }

The rapid increase which has taken place in recent years in the amount of Australian Government securities, bearing interest at the higher rates, is clearly shewn in the table hereunder, which gives particulars concerning the aggregate amount of the Australian indebtedness, at the several rates of interest, on 30th June in each of the years 1916 to 1920 :—

RATES OF INTEREST PAYABLE ON PUBLIC DEBT OF STATES, 30th JUNE, 1916 TO 1920.

Rate of Interest.	30th June, 1916.	30th June, 1917.	30th June, 1918.	30th June, 1919.	30th June, 1920.
%	£	£	£	£	£
6	39,900	19,900	1,900	..	2,241,800
5¾	..	..	13,076,000	16,076,000	19,576,000
5½	..	5,590,000	10,180,000	20,924,002	35,338,489
5¼	2,950,000	6,695,400	6,695,400	8,462,694	25,220,443
5	7,010,675	14,753,617	17,582,034	18,100,129	20,692,892
4¾	..	..	..	7,158,900	7,368,597
4½	28,755,096	32,845,044	38,146,932	33,907,543	28,277,650
4¼	771,250	901,000	801,000	646,250	640,750
4⅛	18,000,000	18,000,000	18,000,000	18,000,000	18,000,000
4	97,985,741	95,382,445	93,220,106	92,321,823	87,383,636
3½	25,989,072	24,714,487	24,376,838	23,834,798	12,654,252
3¼	129,732,699	127,146,373	124,075,299	110,222,724	109,989,876
3	(a)46,591,188	(a) 46,450,341	(a) 46,376,402	(a) 46,439,891	46,269 852
Not bearing interest	8,150	19,017	8,250	7,400	38,255
Total public debt	357,813,771	372,517,624	392,540,161	(b) 396,356,149	(c) 417,309,772
Average rate per cent. payable	£3/15/1	£3/16/6	£3/18/6	£4/0/3	£4/3/4

(a) Including £24,718 at 3½ per cent. (b) Including £254,035 for which rate of interest has not been fixed. (c) Including £3,622,280 for which the rate of interest has not been fixed.

The feature of this table is the rapid rise in the average rate of interest. The process started in 1912, but was accelerated by the war, which has virtually made 5½ per cent. the present minimum rate of interest for gilt-edged securities. The average rate is likely to rise for some considerable time, since securities falling due in the immediate future will, in all likelihood, have to be renewed at a higher rate of interest.

7. **Interest per Head.**—The relative burden of the debts of the several States *in respect of interest payments will be seen from the following table,* which gives for the 30th June, 1920, the amount of interest paid during the financial year ending at *that date, and also the corresponding amount per head of population* :—

STATE DEBTS.—INTEREST PAID DURING 1919-20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Total annual interest paid	6,030,721	3,220,422	(a)2,665,548	1,716,590	1,747,593	604,123	15,984,997
Annual interest paid per head	£3/0/8	£2/3/0	£3/13/6	£3/13/5	£5/5/4	£2/15/9	£3/0/11

(a) Inclusive of flotation expenses.

8. **Dates of Maturity.**—An important point of difference between the securities of the Australian Governments, whether in the form of inscribed stock, debentures, or Treasury bills, and such a well-known form of security as British Consols, is that whereas the latter are interminable, the Australian Government securities have in almost all cases a fixed date for repayment, there being only a few exceptions, which are included in the following table under the headings "interminable" and "indefinite." The "indefinite" includes amounts which are payable by the respective Governments after giving a specified notice, and also certain amounts owing to the Commonwealth Government. The terms of the loans raised by the issue of debentures and inscribed stock have varied considerably

in the different States, ranging between fifteen and fifty years, while loans obtained by means of Treasury bills have usually been for such short terms as from six months to five years. In the case of the majority of the loans the arrival of the date of maturity means that arrangements for renewal are necessary in respect of the greater portion of the loan, as it is only in exceptional cases that due provision for redemption has been made. The condition of the money market at the date of maturity has an important bearing on the success or otherwise with which the renewal arrangements can be effected, and consequently, in order to obviate the necessity for making an application to the market at an unfavorable time, several of the States have now adopted the practice of specifying a period of from ten to twenty years prior to the date of maturity within which the Government, on giving twelve, or in some cases six, months' notice, has the option of redeeming the loan. By such means advantage may be taken by the Government during the period of opportunities that may offer for favorable renewals. Particulars concerning the due dates of the loans of the several States outstanding on 30th June, 1920, are given in the following table.

Those loans in the case of which the Government has the option of redemption during a specified period have been in each instance classified according to the latest date of maturity :—

DUE DATES OF THE PUBLIC DEBTS OF THE SEVERAL STATES OUTSTANDING ON 30th JUNE, 1920.

Due Dates.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Total.
	£	£	£	£	£	£	£
Overdue ..	36,655	1,000	600	..	500	..	38,755
1920	629,500	6,906,366	..	879,966	47,480	220,711	8,684,023
1921	5,449,043	8,562,235	..	2,101,904	814,855	1,087,169	18,015,006
1922	9,105,000	10,509,265	2,839,750	2,687,762	1,692,200	636,994	27,660,971
1923	8,174,333	10,392,398	..	3,278,010	683,800	470,009	22,999,450
1924	29,463,574	592,390	13,140,634	1,862,822	794,570	222,664	46,076,654
1925	2,573,914	6,679,740	12,007,200	2,039,067	..	1,198,623	24,498,544
1926	415,000	5,115,000	813,300	2,285,261	1,922,305	279,347	10,830,213
1927	15,323,625	2,012,450	4,352,050	2,407,504	5,550,500	1,113,199	30,819,828
1928	36,000	962,525	453,600	846,308	..	231,942	2,530,375
1929	169,040	863,061	93,100	221,618	..	466,834	1,813,653
1930	..	1,814,650	3,954,800	302,675	..	19,919	6,092,044
1931	..	1,061,648	..	450	..	18,818	1,080,916
1932	13,076,000	929,550	..	1,225	1,380,540	19,559	15,406,874
1933	9,686,300	..	..	368,912	716,708	20,331	10,792,251
1934	3,000,000	3,000,000	..	1,043,421	1,866,318	21,134	8,930,873
1935	17,500,000	..	..	1,478,499	8,358,185	162,718	27,499,402
1936	..	300,000	..	4,250,380	1,240,000	22,837	5,813,217
1937	..	..	..	15,586	..	33,966	49,552
1938	..	..	..	92,383	490,500	24,678	607,561
1939	..	..	..	2,569,499	96,945	25,655	2,692,099
1940	..	248,900	2,000,000	14,860	1,500,000	5,635,301	9,399,061
1941	..	324,380	462,300	..	..	27,728	814,408
1942	..	485,100	15,000	..	..	28,824	528,924
1943	..	3,600	..	..	..	29,968	33,568
1944	..	400	..	..	..	31,156	31,556
1945	..	..	7,516,050	..	..	32,390	7,548,440
1946	..	217,400	..	..	..	33,675	251,075
1947	..	..	4,498,693	..	2,000,000	35,010	6,533,703
1948	..	..	..	..	..	28,708	28,708
1949	..	11,699,471	..	..	..	28,396	11,727,867
1950	12,250,000	..	6,946,600	..	..	2,829,469	22,026,069
1951	..	..	999,600	..	..	30,584	1,030,184
1952	..	..	..	..	..	31,740	31,740
1953	..	..	2,147,809	..	..	32,460	2,180,269
1954	..	123,874	..	..	..	17,195	141,069
1955	..	..	..	..	4,437,000	17,803	4,454,803
1956	..	..	..	..	..	12,249	12,249
1960	..	2,979,700	2,000,000	3,000,000	1,000,000	..	8,979,700
1962	10,500,000	..	..	..	6,000,000	..	16,500,000
1964	..	..	..	..	1,566,000	..	1,566,000
1965	..	..	1,122,000	..	..	..	1,122,000
1970	..	..	2,000,000	..	..	..	2,000,000
Interminable ..	532,890	..	..	..	..	..	532,890
Annual drawings	..	..	..	..	72,700	..	72,700
Indefinite ..	14,795,206	11,862,636	2,317,678	11,805,034	4,601,097	1,449,375	46,831,026
Total ..	152,776,082	87,647,739	69,680,764	43,753,146	46,822,003	16,630,038	417,309,772

9. **Sinking Funds.**—The practice of providing for the ultimate extinction of the public debt by means of the creation of sinking funds, receiving definite annual contributions from Consolidated Revenue, and accumulating at compound interest, has only been consistently adopted in the case of Western Australia. This State has established, in connexion with each of its loans, sinking funds varying from 1 per cent. to 3 per cent. per annum of the nominal amount of the loan. These funds are placed in the hands of trustees in London, by whom they are invested in the securities of the British, Indian, and Colonial Governments, and applied from time to time to the redemption of loans falling due. In the remaining States the sinking fund provision made is varied, consisting in certain instances of the revenues from specified sources, in others of the Consolidated Revenue Fund surplus, and in others again of fixed annual amounts. In the following table are given particulars of the sinking funds of each State, and the net indebtedness of each after allowance for sinking fund has been made, the details given being those for 30th June, 1920 :—

STATE SINKING FUNDS AND NET INDEBTEDNESS, 30th JUNE, 1920.

State.	Gross *Indebtedness.*	Sinking Fund.	Net *Indebtedness.*	Net Indebtedness *per Head.*
	£	£	£	£ *s.* *d.*
New South Wales ..	152,776,082	384,639	152,391,443	75 0 8
Victoria	87,647,739	2,395,813	85,251,926	58 13 5
Queensland ..	69,680,764	402,421	69,278,343	93 19 9
South Australia ..	43,753,146	1,437,519	42,315,627	88 15 5
Western Australia ..	46,822,003	6,848,826	39,973,177	119 12 4
Tasmania	16,630,038	699,890	15,930,148	73 10 8
Total ..	417,309,772	12,169,108	405,140,664	76 9 0

10. **Total Public Debt, Commonwealth and States.**—With the object of setting out the entire liability of the Australian public, the Commonwealth and State debts have been brought together into one statement in the appended table. It will be noticed that there is a column headed "deduction for debts counted twice." This includes transferred properties for every year, and, for the last four years, loans raised in London by the Commonwealth on behalf of the States.

PUBLIC DEBT OF AUSTRALIA FOR FIVE YEARS, 1915-16 TO 1919-20.

Year ended 30th June.	Public Debt *of* Commonwealth	Public Debt *of* States.	Total of two preceding Columns.	Deduction for Debts Counted Twice.	Balance being *Public Debt* of Australia.	Public Debt per Capita.
	£	£	£	£	£	£
1916..	101,344,285	357,813,771	459,158,056	10,781,797	448,376,259	91 9 0
1917..	169,229,557	372,517,624	541,747,181	18,289,739	523,457,442	106 18 4
1918..	284,055,069	392,540,161	676,595,230	23,202,515	653,392,715	131 3 10
1919..	325,770,747	396,356,149	722,126,896	27,952,619	694,174,277	135 0 10
1920..	381,309,905	417,309,772	798,619,677	28,190,462	770,429,215	145 7 5

On pages 671 to 674 will be found a series of graphs illustrating the rise in the revenue, public debt, and taxation of the Commonwealth and States since 1902, the year 1901-2 being the first complete financial year since Federation.

11. ***Commonwealth and State Taxation Acts.***—A review in summarized form of the legislation dealing with these matters is given hereunder.

CONSPECTUS OF INCOME TAX ACTS

ticulars.	Commonwealth.	New South Wales.	Victoria.
in Force ..	Income Tax Assessment Act 1915 (2), 1916 (2), 1918 Income Tax Act 1915 (2), 1916, 1917, 1918, 1919, 1920	Income Tax Management Act 1912, 1914 (2), 1918 Income Tax Act 1911, 1912, 1914, 1920	Income Tax Act 1914, 1915 (2), 1920
dministered	Commissioner of Taxation, Assistant and Deputy Commissioners	Commissioner of Taxation, Deputy Commissioner	Commissioner of Taxes, Deputy Commissioners
itions ..	(*a*) *Absentee* means a person who does not reside in Australia or who has been absent from Australia during more than one-half of the financial year (*b*) *Income from Personal Exertion* means income derived in Australia consisting of earnings, salary, wages, commission, fees, bonuses, pensions, superannuation allowances, retiring allowances not paid in a lump sum, allowances received in the capacity of an employee and the proceeds of a business (*c*) *Income from Property* means all income derived in Australia not from personal exertion	(*a*) *Income from Personal Exertion* means income consisting of the proceeds of any business, earnings, salaries, wages, fees, bonuses, pensions, or payments made upon superannuation or retirement from employment (*b*) *Income from Property* means income derived from any source in the State other than from personal exertion	(*a*) *Income from Personal Exertion* means all income consisting of earnings, salaries, wages, allowances, pensions, superannuation, or retiring allowances, or stipends earned in or derived from Victoria, and all income arising or accruing from any trade carried on in Victoria (*b*) *Income from Property* means all income derived in or from Victoria and not derived from personal exertion. All income subject to tax derived or earned or received by or arising or accruing to a trustee or a beneficiary is deemed to be income from property
is expressly Income	(*a*) Profits derived from any trade or business and converted into stock-in-trade or added to capital (*b*) Dividends, profits, or bonuses, paid by a company (*c*) Beneficial interests in income derived under any will, settlement, or deed of gift (*d*) Money derived from royalty, bonuses, etc., in connexion with leasehold estates (*e*) Five per cent. of the capital value of land and improvements on land used rent free not for gain (*f*) All allowances, gratuities, etc., granted to a taxpayer in respect of employment or services (*g*) Five per cent. of the capital amount of a retiring allowance or gratuity which is paid in a lump sum (*h*) A cash prize in a lottery (*i*) Five per cent. of the capital amount of a retiring allowance or gratuity paid in a lump sum	(*a*) Income derived from any source in the State, including interest upon money secured by the mortgage of any property in the State (*b*) Any gains or profits accruing on the sale (i) of any estate or interest in land within the State, including lease and goodwill, where land was bought or leased during four prior years, or during the year of income, or (ii) of shares in any company bought during the year of income or the two prior years, or (iii) of any other personal property of the value of £50 or upwards bought during the year of income where such buying and selling is not in the course of the business of the taxpayer	(*a*) Four per cent. of the actual capital value of land with improvements used for the purpose of residence or enjoyment (*b*) The estimated annual value of any residence, quarters, or board, and every extra salary, bonus, or allowance granted to any persons (*c*) Profits converted into stock-in-trade or added to capital or invested in trade (*d*) Profits or part of capital credited to any member of a company registered under Part II. of the Companies Act and carrying on mining operations in Victoria
on of Agents es		In the case of an agent selling goods for an absentee or foreign company, the principal for taxation is deemed to be 5 per cent. of the price at which the goods were sold	In the case of an agent disposing of property in Victoria for a principal outside the State, the taxable amount of income is 6 per cent. of the amount for which the property has been sold

IN FORCE IN AUSTRALIA, 1921.

Queensland.	South Australia.	Western Australia.	Tasmania.
Income Tax Act 1902 (2), 1904, 1905, 1906, 1907, 1915, 1918, 1920 (2)	Taxation Act 1915, 1917, 1919, 1920	Land and Income Tax Assessment Act 1907, 1918 Charitable Purposes Income Deductions Act 1920 Land Tax and Income Tax Act 1920 Dividend Duties Act 1902, 1906, 1915, 1918 (2), 1920	Land and Income Taxation Act 1910, 1911, 1912, 1914, 1915, 1918 Land Tax and Income Tax Act 1912, 1915, 1916, 1917, 1919
Commissioner of Income Tax, Deputy Commissioner	Commissioner of Taxes, Acting and Deputy Commissioners	Commissioner of Taxation	Commissioner of Taxes, Acting Commissioner, Deputy Commissioners
(*a*) *Absentee* means a person who does not ordinarily reside in Australia or who is absent at the time the tax is assessed or who has been absent from Australia during more than half of the preceding twelve months (*b*) *Income from Personal Exertion* means all income arising from earnings, salaries, wages, allowances, fees, commissions, pensions, superannuation or retiring allowances or stipends earned in or derived from Queensland, and from any business carried on in Queensland (*c*) *Income from Property* means all income derived in or from Queensland not from personal exertion	(*a*) *Income from Personal Exertion* includes every kind of profit and gain, whether arising in the course of business or otherwise, excepting gifts, legacies, and bequests, and all salaries, wages, allowances, pensions, or stipends with the exception of income derived from property (*b*) *Income from Property* includes all rents, fines, and premiums payable on the granting or renewal of leases, interest, and annuities	(*a*) *Absentee* means a person who has not been resident in the Commonwealth of Australia during any part of the year next preceding the year of assessment (*b*) *Dependent* means a relative by blood, marriage, or adoption, towards whose maintenance the taxpayer has contributed £26 during the year (*c*) *Income* includes profits, gains, rents, interest, salaries, wages, allowances, pensions, stipends, charges, and annuities	(*a*) *Income from Business* means all income arising or accruing from any trade, manufacture, profession, employment, occupation, or business of any kind, whether carried on in Tasmania or elsewhere, and all income consisting of wages, salaries, allowances, fees, commissions, pensions, or stipends (*b*) *Income from Property* means any income not being income from business
A. *From Personal Exertion*— (*a*) All net gains or profits from the sale of real and personal property B. *From Property*— (*a*) Annuities paid by a person residing in Queensland or in connexion with property in Queensland (*b*) The amount of premium paid upon the grant of a lease of land (*c*) Improvements effected by a tenant, who is not reimbursed by the landlord (considered as income to the landlord) (*d*) Cash prizes in a lottery or sweep carried on in Queensland (*e*) Income received as a beneficiary from any trust estate (*f*) Five per cent. of the capital value of any land and improvements occupied as a residence (*g*) All moneys received as royalty	(*a*) Income resulting from the buying, selling, or dealing in the State of any shares, etc., in any company wheresoever situate (*b*) Rent, interest, and other profits arising out of money invested in the State or lent to any person in the State or secured upon any lands therein (*c*) Income arising from any contracts made in the State for the sale of goods (*d*) Any amount payable and the value of any property or shares taken by way of goodwill upon the sale or transfer of any business (*e*) The use of any house and all gratuities, bonuses, and premiums in respect of any employment. (The use of a house is valued according to the annual value thereof) (*f*) Five per cent. of the actual value of land with improvements used for the purpose of residence or enjoyment	(*a*) All incomes arising from any profession, trade, employment or vocation carried on in Western Australia (*b*) All incomes arising or accruing from any salary or allowance attached to any employment in the Public Service of Western Australia, and upon every pension or allowance payable from the Consolidated Revenue Fund (*c*) All incomes arising or accruing from any kind of property or from any other source in Western Australia (*d*) All gratuities, bonuses, and premiums, whether in money, goods, sustenance, or land granted in relation to any employment	(*a*) Profits derived from any business which has been converted into stock-in-trade or added to capital or invested in business (*b*) The estimated annual value of a residence occupied in connexion with one's employment without payment of rent (*c*) The estimated annual value of quarters or board and residence, and any extra salary, bonus, or allowance (*d*) The value of anything withdrawn from the saleable stock or produce of any business and applied to domestic or personal use (Any appreciation in the value of property and profits made by the sale of property, which is not sold in the course of carrying on business, is not included in income)
In the case of a foreign company or absentee carrying on business in Queensland by an agent, the income is deemed to be 7½ per cent. of the amount for which the property has been sold	Income tax on sales in South Australia for absentees is assessed at 5 per cent. of the purchase money or of the actual cost of manufacture in respect of goods treated but not sold in South Australia	The tax on an agent selling goods for an absentee is 5 per cent. on the total amount received for such goods	The tax on an agent selling goods for an absentee is 5 per cent. of the amount received for goods sold

CONSPECTUS OF INCOME TAX ACTS

Particulars.	Commonwealth.	New South Wales.	Victoria.
6. Taxation of Companies (other than Mining and Insurance Companies)	The taxable income is the total amount of income whether distributed or available for distribution to shareholders	Companies are taxed in the same manner as individual persons, but at a different rate	The taxable income is the profits earned in Victoria, and companies are taxed similarly to individuals, but at a different rate
7. Mining Companies	Except in the case of coal mines, the capital expended must be divided by the estimated number of years during which payable operations may be expected to continue, and the quotient thus obtained deducted from the income	Same as ordinary companies	The taxable income is to be the total amount of dividends declared and debenture interest paid
8. Insurance (other than Life Insurance Companies)	Same as ordinary companies	Same as ordinary companies	Same as ordinary companies, the amount of premiums may not be deducted
9. Life Insurance Companies	Same as ordinary companies, but the amount received *in premiums is* deducted. A reversionary bonus on a policy is not taxable	Same as ordinary companies	The taxable income is 30 per cent. of the premiums received, *and for industrial life assurance* business 15 per cent. of the premiums
10. Incomes exempt from Taxation	(*a*) Revenue of a municipal corporation or other local authority (*b*) Income of a registered Friendly Society (*c*) Income of a registered Trade Union or Employers' or Employees' Association (*d*) Income of a religious, scientific, charitable, or public educational institution (*e*) Interest on Commonwealth War Loans, which are declared to be free from Income Tax (*f*) Income of a provident, benefit, or superannuation fund for employees. (*g*) Salaries of the Governor-General and State Governors (*h*) Income from personal exertion during war of persons on active service (*i*) Salaries of consuls and British trade commissioners (*j*) War pensions (*k*) Income of societies or associations not carried on for gain	(*a*) Revenues of municipal corporations and local authorities (*b*) Incomes of mutual life assurance societies and companies not carrying on business for gain (*c*) Profits of Savings Banks (*d*) Incomes of registered Friendly Societies and Trade Unions (*e*) Incomes of public ecclesiastical, charitable, or educational institutions (*f*) Income from sources outside the State (*g*) Incomes of Starr-Bowkett Societies (*h*) Income from Government securities (*i*) Income from shares in a company (dividends being taxed at their source)	(*a*) Income received by His Majesty, Railway Commissioners, public and local authorities, State Savings Bank, University, and technical schools when such income is official (*b*) Emoluments of the Governor (*c*) Income of bodies formed solely for the promotion of religion (*d*) Income of registered Friendly, Provident and Building Societies and Trade Unions, and Societies, etc., not engaged in trade for gain (*e*) Income from any insurance business licensed under the *Stamps Act* (*f*) Interest accruing to a person not resident in Victoria from Victorian Government stock or municipal bonds (*g*) Pensions paid under any Commonwealth Act relating to war pensions (*h*) Interest on Government, Savings Bank, or Crédit Foncier securities (*i*) Dividends from companies

IN FORCE IN AUSTRALIA, 1921—*continued*.

Queensland.	South Australia.	Western Australia.	Tasmania.
(*a*) *Local Companies*—Tax is paid upon dividends and undistributed profits (*b*) *Foreign Companies*—Income is the profits on Queensland business, or taxable amount may be assessed at 7½ per cent. of sales in Queensland if a mercantile company or of capital if any other company	Income of a company is ascertained in the same way as that of an individual, but the amount accruing in South Australia is the only taxable amount, and is deemed to be income derived from property and taxable on that basis	Companies pay duty under the *Dividend Duties Act* upon dividends	(*a*) Companies pay income tax on all dividends and profits and on interest on borrowed money (*b*) The full amount of income is taxable in the case of a company having its head office in Tasmania (*c*) The taxable income of a foreign company is 5 per cent. of the turnover in the State of the capital; and the minimum assessment of such a company is £1,000
Profits are taken to be applied in the first place to repayment of the cost of labour and materials employed in developing the mine, and in the second place in repayment of three-fourths of the cost of machinery for raising ores and other material	No special provision ..	(*a*) The cost incurred for labour and material employed in development work and for testing mines under option of purchase may be deducted (*b*) The sale price of a mine when sold is deemed to be the taxable income, less deduction for capital expenditure	In the case of a mining company incorporated in Tasmania, carrying on the whole of its operations outside the State, the taxable amount is one-half of all dividends
The taxable income of a foreign company is 25 per cent. of the premiums received on Queensland business, less premiums paid in reinsurance	Same as ordinary companies	Duty is levied on the amount of net premiums received exclusive of premiums paid away in reinsurance	The taxable income of a foreign company is 50 per cent. of the premiums received, less the amount paid in reinsurance
The taxable income of a foreign company is 25 per cent. of ordinary and 15 per cent. of industrial premiums received on Queensland business	The taxable income is the amount of surplus or profits actually distributable amongst South Australian policy-holders	Duty is payable only on the amount received in interest on investments	The taxable income of a foreign company is 20 per cent. of the premiums received in the State
(*a*) Income of the Governor so far as respects the emoluments of his office as Governor (*b*) Revenues of local authorities and local bodies (*c*) Incomes of societies and institutions not carrying on business for gain (*d*) Funds and incomes of registered Friendly Societies and Trade Unions (*e*) Incomes and revenues of religious, charitable, and educational institutions of a public character (*f*) War gratuities granted by the Government of the Commonwealth (*g*) Income from companies which have paid duty on dividends (*h*) Income from interest on Queensland and Commonwealth securities	(*a*) Incomes of municipal corporations and district councils (*b*) Incomes of companies and societies not carrying on business for gain to be divided among the members (*c*) Incomes of Friendly Societies (*d*) Income from interest on Government securities	(*a*) Revenues of municipal corporations, road boards, and public bodies (*b*) Incomes of life insurance companies and companies or societies not carrying on business for gain, except interest on investments (*c*) Dividends and profits of the Government Savings Bank and Agricultural Bank (*d*) Funds and incomes of registered Friendly Societies and Trade and Industrial Unions (*e*) Incomes and revenues of public, ecclesiastical, charitable, and educational institutions (*f*) Salary and emoluments of the Governor (*g*) Income of a British pensioner, if taxable elsewhere (*h*) Pensions for injuries received on active service (*i*) Income from Government securities	(*a*) Incomes of companies, registered without "Limited," societies or public bodies not carrying on business or trading for gain to the members (*b*) Revenues of marine boards, municipal corporations, water trusts, and loca authorities (*c*) Funds and incomes of registered Friendly Societies and Trade Unions (*d*) Dividends and profits of the State Savings Bank and Agricultural Bank of Tasmania (*e*) Police Provident Fund, Closer Settlements Fund, and any fund exempted by Statute (*f*) Income of the Governor (*g*) Income of every person arriving in Tasmania for six months after arrival (not applying to a company or person carrying on business in the State) (*h*) Salaries of the Agent-General and his officers (*i*) Commonwealth war pensions

CONSPECTUS OF INCOME TAX ACTS

Particulars.	Commonwealth.	New South Wales.	Victoria.
11. Ordinary Deductions allowed from Income	(*a*) Losses and outgoings incurred in Australia in producing the gross income (*b*) Rates and taxes, except Federal income tax (*c*) Life insurance or fidelity guarantee premiums up to £50 (*d*) Repairs to machinery and plant (*e*) Reasonable wear and tear of machinery, etc. (*f*) Food and rent for an employee (*g*) Payments to superannuation funds or registered Friendly Societies, not exceeding £50 (*h*) Gifts during war to patriotic funds, contributions to Repatriation Department, and gifts exceeding £5 to charities (*i*) Five per cent. of calls paid to a company, and total amount to a mining company (*j*) Sums set aside for benefit, pensions, etc., to employees (*k*) Commission for collecting income (*l*) Interest on mortgage of residence (*m*) Annual expenditure on improvements by a lessee who has no tenant rights therein (*n*) Services of taxpayers' children (over 15 years) employed in his business	(*a*) Premiums on life insurance, or fidelity or guarantee bond up to £50 (*b*) Payments into a Government superannuation fund (*c*) Losses, outgoings, and expenses incurred in New South Wales in production of income, including repairs, wear and tear, and under certain circumstances, bad debts (*d*) Annual expenditure on improvements made by a lessee who has no tenant rights therein (*e*) Expenditure on suckering or eradicating seedlings or prickly pear (*f*) £50 in respect of the allowances of members of the Legislative Assembly	(*a*) Losses and outgoings incurred in the production of income, Victorian taxes (except income tax), interest on borrowed money, commission on collecting income, calls in Victorian mining companies, Commonwealth land tax, and Workmen's Compensation premiums (*b*) Life insurance premiums up to £50 (*c*) Calls in a reconstructed company the shares of which are of no marketable value (*d*) Calls in a company in liquidation (*e*) Payments to a guarantee or provident fund not exceeding £50 (*f*) Gifts over £20 each to Victorian public institutions (*g*) Wages or sustenance of employees in any trade (*h*) Wear and tear of machinery, etc. (*i*) Interest on a mortgage of land outside Victoria (*j*) Losses where more than one trade carried on
12. Deductions allowed when Land Tax is paid	No provision	No provision	Income from live stock, wool, meat, milk, dairy produce, fruit, grain, fodder, and other crops arising from land on which the owner pays land tax is exempt, if the unimproved value does not exceed £5,000, and the maximum amount of income tax where the value of land exceeds £5,000 but not £6,000 is £5 £6,000 but not £7,000 is £7 10s. £7,000 but not £8,000 is £10 £8,000 but not £9,000 is £12 10s.
13. Minimum Income on which Tax is payable, and Deductions from Gross Income	(*a*) *Minimum Income.*—(i) Married person or person with a dependent, not a company or an absentee, £156. (ii) Unmarried person without dependent (other than a company or absentee), £100 (*b*) *Deductions.*—(i) Married person or person with dependents £156, less £1 for every £3 by which income exceeds £156. (ii) Unmarried person without dependent, £100, less £1 for every £5 in excess. (iii) Absentee, no deduction. (iv) Companies, no deduction	(*a*) *Minimum Income*, £250 (*b*) *Deductions*, £250. No deduction for companies	(*a*) *Minimum Income*, £200 (*b*) *Deductions*, £150, provided the income chargeable does not exceed £500. No deduction for companies

IN FORCE IN AUSTRALIA—*continued.*

Queensland.	South Australia.	Western Australia.	Tasmania.
(*a*) Losses and outgoings incurred in Queensland in production of income (*b*) Rates and taxes under any Queensland Act (except *Income Tax Act*), and Commonwealth land tax (*c*) Interest on borrowed money or on mortgage on residence (*d*) Commission for collecting income (*e*) Imperial or Commonwealth war pensions (*f*) Cash donations over £2 to a Queensland Patriotic Fund (*g*) Life insurance premiums not exceeding £50 (*h*) Contributions to superannuation fund or registered Friendly Society, up to £50 (*i*) Repairs to property, etc. (*j*) Depreciation of buildings, machinery, etc. (*k*) Legal expenses in collecting debts, drawing up leases, etc. (*l*) Travelling, to £50, and election expenses to £75 of members of Parliaments (*m*) Services of children over 16 years of age, to whom no wages are paid (*n*) Contributions to Queensland charitable institutions (*o*) *Bona fide* wages to husband or wife (*p*) Wages, salaries, and quarters of employees	(*a*) Loss upon a *bona fide* sale of a business (*b*) Interest from a company liable to pay income tax (*c*) Services of sons and daughters over 16 years of age employed in the taxpayer's trade or occupation (*d*) Commonwealth income tax and war-time profits tax on profits arising from South Australia (*e*) Losses when more than one business is carried on (*f*) Losses, outgoings, and expenses incurred in the production of income.	(*a*) Losses, outgoings and expenses incurred in Western Australia in the production of income (*b*) Repairs of premises let to tenants (*c*) Life insurance or fidelity premiums up to £50 (*d*) Repairs of business premises, machinery, etc. (*e*) Fair wear and tear of machinery, etc. (*f*) Losses and expenses incurred beyond the State, in certain cases only (*g*) Four per cent. on the value of business premises owned by the taxpayer (*h*) Services of taxpayer's children over 16 years of age employed in his trade (*i*) Losses when more than one business is carried on (*j*) Interest on mortgages and loans (*k*) Dividends of companies subject to dividend duty, if the income of the taxpayer amounts to a sum which would be liable at a rate exceeding 1s. 3d. in the pound (*l*) Payments made to trustees of charitable institutions, parks, reserves, university, public schools, libraries, art galleries, museums, or other institutions for public education, recreation, or enjoyment subsidized by the Government	(*a*) Losses, outgoings and expenses incurred in the production of income (*b*) Interest on borrowed money for business purposes and rent charge on land (*c*) Rent of land and buildings for business purposes (*d*) Repairs of premises let to tenants (*e*) Repairs to business premises, machinery, etc. (*f*) Losses where more than one business is carried on (*g*) Wear and tear of machinery, etc. (*h*) Fire insurance premiums (*i*) Land tax on mortgages upon land outside the State (*j*) Interest from Government securities redeemable elsewhere than in Tasmania
From the amount of tax payable on income derived from agricultural, dairying, or grazing pursuits, may be deducted the amount of land tax paid under any Queensland Act on land of which the taxpayer is the owner of the freehold. Grazing pursuits means the grazing of stock on freehold areas, the unimproved value whereof does not exceed in the aggregate £1,280	No provision	Whenever a person is assessed for income tax on profits derived from the ownership of or from the use or cultivation of any land, an abatement is allowed of so much of the amount as is paid for land tax on such land	(*a*) When a taxpayer owns or occupies any land on which State land tax is payable, he may deduct from income 5 per cent. of the unimproved value of such land, *provided that* he carries on any pastoral, agricultural, or horticultural pursuit as his chief means of gaining a living (*b*) Five per cent. of the unimproved value of land from which income is derived as rent may be deducted if State land tax is payable
(*a*) *Minimum Income*—(i) Persons (not being a company or absentee), £200. (ii) Absentees and companies, no minimum (*b*) *Deductions*—(i) Persons (not a company or absentee), £200, less £1 for every full £4 by which the net income exceeds £200. (ii) Companies and absentees, no deduction	(*a*) *Minimum Income*—(i) Unmarried males and widowers without children, £100. (ii) Other persons, £150. (iii) Absentees, no minimum. (iv) Taxpayers temporarily in the State are allowed *pro rata* exemption for the period while in South Australia. (v) Companies, no minimum (*b*) *Deductions*—On same basis as minimum income	(*a*) *Minimum Income*—(i) Married persons and persons with dependents, £156. (ii) Other persons, £100 (*b*) *Deductions*—No deduction allowed	(*a*) *Minimum Income*—(i) Widow, or widower with dependent or married person, £156; if returned soldier, £200. (ii) Unmarried person, £125; if returned soldier, £156 (*b*) *Deductions*—(i) Widower or widow with child under 16 years or married person, who is a returned soldier, £156 (ii) Unmarried returned soldier, £100. (iii) Other persons, not less than £100 and less than £110 income, deduction £70; not less than £110 and less than £125, £60; not less than £125 and less than £150, £50; not less than £150 and less than £250, £40; not less than £250 and less than £350, £30; not less than £350 and less than £400, £20. (iv) Companies, no deduction

CONSPECTUS OF INCOME TAX AC[T]

Particulars.	Commonwealth.	New South Wales.	Victoria.
14. Deductions allowed for Children, etc.	£26 for each child under 16 years of age, wholly maintained by a taxpayer, who is not an absentee, deducted from income	£50 for each child under 18 years of age, wholly maintained by the taxpayer, deducted from income	No deduction allowed
15. Deductions specifically not allowed	(*a*) Cost of maintenance of the taxpayer or his family (*b*) Domestic or private expenses (*c*) Losses recoverable under a contract of insurance or indemnity (*d*) Income carried to reserve fund or capitalized (*e*) Money not exclusively expended for producing income (*f*) Rent or repairs to premises not used for producing income (*g*) Bad debts, except those actually written off (*h*) Loss not connected with production of income or capital withdrawn (*i*) Wastage or depreciation of lease or improvements on leasehold property (*j*) Interest which might have been earned (*k*) Payments by husband to wife or *vice versa* not made *bona fide* in the course of business	(*a*) Any payment of income tax (*b*) Any wastage or depreciation of a lease or in respect of any loss occasioned by the expiration of a lease (*c*) Cost of maintenance of taxpayer and his family (*d*) Domestic and private expenses (*e*) Losses recoverable under contract of insurance or indemnity (*f*) Rates and taxes other than those imposed by New South Wales Acts	(*a*) Repairs or alteratio beyond the usual amount (*b*) Loss not connected wi trade or capital withdrawn used in the improvement premises used for the purpos of trade (*c*) Interest which mig have been earned on capital (*d*) Bad debts, except tho to the Commissioner's sati faction (*e*) Average loss beyond t actual amount after adjus ment or sum recoverable b insurance (*f*) Maintenance of family private disbursements (*g*) Disbursements not whol expended for the purposes trade (*h*) Rent of premises n used for trade (*i*) Income tax
16. Returns ..	Returns must be made by— (*a*) any person not an absentee, whose total income from all sources in Australia amounts to £100 and over (*b*) A company or absentee whose total income from all sources in Australia exceeds £1	(*a*) Every person or company receiving income must furnish a return (*b*) The Commissioner must give 30 days' notice of the place at which taxpayers must furnish returns	Returns must be made a nually by every taxpaye income from personal exe tion and from property bein calculated separately
17. Payment of Tax	(*a*) Tax is due and payable within 30 days after service by post of notice of assessment (*b*) Commissioner may extend time or permit payment in instalments (*c*) If tax not paid within prescribed time, 10 per cent. added	(*a*) Commissioner must post notice of assessment, with amount of tax payable, and date of payment, to each taxpayer (*b*) If tax not paid within 21 days of due date, 10 per cent. added	(*a*) Not less than 14 day notice must be given of th date on which tax is payab (*b*) If tax not paid within 2 days of due date, 8 per cen per annum is added
18. Objections and Appeals	Objections may be lodged with the Commissioner and further appeal is allowed to the High Court, the Supreme Court, or State County or District Court, or any proclaimed Court. Tax must be paid pending appeal	Appeal may be made to a Court of Review, consisting of any Court, Judge, or Police Magistrate as declared by the Governor. Further appeal on questions of law may be made to the Supreme Court	Objections may be lodge with the Commissioner, whos decision is final, except to the amount of assessmen which is determined by Judge of County Courts, the Commissioner's decision objected to. A special cas may be stated for the Suprem Court. The right to recove tax is not suspended pendin appeal

IN FORCE IN AUSTRALIA, 1921—*continued.*

Queensland.	South Australia.	Western Australia.	Tasmania.
£26 from income of resident whose income does not exceed £800, for (*a*) each child under 16 years actually dependent, (*b*) wife and each relative wholly maintained, (*c*) female relative, residing with him for purpose of caring for his child if incapacitated, without income exceeding £25 and actually dependent upon him; where income exceeds £800, allowance reduced by £1 for every £5 in excess thereof	If the net income of the taxpayer does not exceed £550, the sum of £15 for each child under the age of 15 years wholly maintained by him is deducted from income	£26 for each child under 16 years of age, residing with and dependent upon the taxpayer, deducted from income	Six shillings for each child under 16 years of age residing with and dependent upon a taxpayer whose income is under £350, deducted from income tax
(*a*) Repairs to machinery, etc., beyond the usual amount (*b*) Losses not connected with business or capital used in the improvement of business premises (*c*) Bad debts, except those to the Commissioner's satisfaction (*d*) Average loss beyond the amount after adjustment or sum recoverable by insurance (*e*) Domestic expenses, etc. (*f*) Disbursements not for the purpose of business (*g*) Rent or annual value of premises not used for business purposes (*h*) Income tax (*i*) Wastage or depreciation of lease or in respect of any loss occasioned by the expiration of a lease (*j*) Losses, except of uninsured live stock, arising through misappropriation, theft, fire, flood, cyclone, etc.	(*a*) Maintenance of the taxpayer and his family (*b*) Domestic or private expenses (*c*) Loss or expense recoverable under insurance (*d*) Moneys not wholly and exclusively expended for the purposes of trade (*e*) Cost of supply of implements, etc., except fair wear and tear (*f*) Rent or value or repairs of premises not occupied for the purposes of trade	(*a*) Maintenance of the taxpayer and his family (*b*) Domestic and private expenses (*c*) Payments made by husband to wife and *vice versa* (*d*) Losses recoverable by insurance (*e*) Income or land tax (*f*) Income earned in Western Australia carried to a reserve fund or capitalized (*g*) Disbursements not wholly incurred in the production of assessable income (*h*) Rent or repairs of premises not used for business purposes (*i*) Investment of capital, expenditure of capital, loss of capital withdrawn from business, money used as capital or in the improvement of business premises, and interest which might have been earned (*j*) Debts, except bad debts (*k*) Depreciation of buildings	(*a*) Maintenance of the taxpayer and his family (*b*) Domestic or private expenses (*c*) Losses recoverable by insurance (*d*) Income or land tax (*e*) Disbursements not wholly incurred in the production of income (*f*) Rent or repair of premises not used for business purposes (*g*) Loss of capital, money used in the improvement of business premises, and interest which might have been earned (*h*) Bad debts, except those proved to the satisfaction of the Commissioner and actually written off
Returns must be furnished by every absentee irrespective of the amount of his income, by every person who carries on business, and by every person whose gross income amounts to £200 and upwards	Every taxpayer must, within the prescribed time, furnish a return	Not less than 30 days' notice must be given of the time and place to which returns must be sent	Not less than 30 days' notice must be given of the time and place at which returns are to be furnished and every taxpayer must furnish returns
(*a*) Notices of assessment must be posted to each taxpayer, and not less than 30 days' notice must be given of the day on which tax must be paid (*b*) If tax not paid within 30 days of due date, 5 per cent. added, and if not within further 30 days, a further 5 per cent. is added	(*a*) Tax is payable on the 14th May in each year (*b*) If tax not paid within one month, a fine of 10 per cent. is imposed and interest at 10 per cent. per annum until it is paid	(*a*) Tax must be paid within 30 days of date of notice (*b*) If tax not paid within such 30 days, 10 per cent. is added	(*a*) Tax must be paid within 30 days after the day upon which the demand should be received by post (*b*) If tax not paid within such period, proceedings for recovery may be taken
Objections may be lodged with the Commissioner, who transmits all objections not allowed by him to a Court of Review, consisting of a Judge of a District Court. A special case may be stated for the Supreme Court. The right to recover taxes is not suspended by any objection or appeal	An appeal may be made against an assessment to the Local Court of Full Jurisdiction. A special case may be stated for the Supreme Court. The right to recover taxes is not suspended by any appeal	An appeal may be made to a Court of Review, consisting of any magistrate of a Local Court. A case may be submitted to the Supreme Court on a question of law. The right to recover taxes is not suspended by any appeal. No appeal may be heard unless one-half the tax and fines (if any) are deposited with the Commissioner	Objections may be lodged with the Commissioner, who forwards those he disallows to a Court of Review, consisting of a Judge of the Supreme Court, or a Commissioner of a Court of Requests. Further appeal may be made to the Supreme Court on a question of law. Taxes may be recovered on the assessment fixed by the Court of Review pending an appeal

CONSPECTUS OF INCOME TAX ACTS

Particulars.	Commonwealth.	New South Wales.	Victoria.
19. **Remission of Tax in cases of Hardship**	A Board, consisting of the Commissioner, the Secretary to the Treasury and the Comptroller of Customs may remit the tax wholly or partly (*a*) When a taxpayer has become insolvent (*b*) Where a taxpayer has suffered such loss or is in such circumstances that the full tax would entail serious hardship (*c*) Where, owing to the death of the person who would have paid the tax, the dependents are in similar circumstances	The Commissioner may forego the whole or any part of any tax due if it appears that serious hardship would otherwise be caused to a taxpayer	Where it is shown to the Commissioner that a taxpayer has become insolvent or that he has suffered loss so that the exaction of the full amount of tax would entail hardship, the Commissioner may release him wholly or in part from his liability to taxation
20. **Offences and Penalties**	(*a*) Failing to furnish returns, wilfully making a false return or answer, minimum £2, maximum £100 (*b*) Failing to furnish returns, or to include assessable income, additional 10 per cent. or £1, whichever is greater (*c*) Understating amount of income with intent to defraud or wilfully avoiding taxation—minimum £50, maximum £500 and treble the amount of tax avoided	(*a*) Failing to furnish returns, maximum £100 (*b*) Wilfully making a false statement, guilty of perjury, and fined not exceeding £500 and treble the amount of income tax avoided (*c*) Any other breach of the Act, maximum £20	Failing to furnish returns or knowingly making a false return or answer, or evading assessment by fraud, minimum £2, maximum £100 and double the amount of tax evaded
21. **Basic Rates of Taxation on Incomes from Personal Exertion**	(*a*) *Incomes not exceeding* £7,600—The average rate per pound is 3 3/800d., where the taxable income is £1, and increases uniformly by 3/800d. with each increase of £1 of the taxable income. Average rate may be calculated from formula $R = \left\{ 3 + \frac{3}{800} I \right\}$ pence, where R = average rate of tax in pence and I = taxable income in £1 (*b*) *Incomes exceeding* £7,600—60d. for every £1 of taxable income in excess of £7,600	Income: Exceeding — Not exceeding — Rate per £1 — — £700 .. 9d. £700 — £1,700 .. 10d. £1,700 — £2,700 .. 1s. £2,700 — £4,700 .. 1s. 2d. £4,700 — £6,700 .. 1s. 5d. £6,700 — £9,700 .. 1s. 9d. £9,700 — .. .. 2s.	(*a*) *Income not exceeding* £500—3d. in the £1 (*b*) *Incomes exceeding* £500— Income. — Rate per £1 Up to £500 .. 4d. Over £500 up to £1,000 5d. Over £1,000 up to £1,500 6d. Over £1,500 .. 7d.

IN FORCE IN AUSTRALIA, 1921—*continued.*

Queensland.	South Australia.	Western Australia.	Tasmania.
If a person has become insolvent or is by reason of age, infirmity, loss or other cause so situated that the exaction of the full amount of tax would entail hardship, the Commissioner may release him wholly or in part from liability to income tax	No provision	No provision	Where a taxpayer has become bankrupt or insolvent or has suffered such loss that the exaction of the full amount of tax would entail serious hardship, the Treasurer, on the recommendation of the Commissioner, may release him wholly or partly from the payment of the tax
(a) Failing to furnish returns, maximum £100 and 10 per cent. additional tax (b) Making false returns or fraudently avoiding taxation, maximum £100 and double the amount of tax evaded	(a) Failing to furnish returns, maximum £20 and treble the amount of tax (b) Failing to furnish a return of all payments of interest or rent when required, not exceeding £50 (c) Wilfully furnishing a false return or making a false declaration, guilty of wilful and corrupt perjury	(a) Failing to furnish a return within the prescribed time, maximum £20 (b) Wilfully making a false statement, or evading assessment or taxation, not exceeding £100 and treble the amount of tax evaded	(a) Failing to furnish a return, maximum £20 (b) Wilfully making a false statement or evading taxation or assessment, maximum £100 and treble the amount of tax evaded
(a) *Incomes not exceeding £4,000*— On the first £1 the rate is 6 6/1000d., and the rate increases progressively by 6/1000d. for each additional £1 of income until £4,000 is reached when the rate is 30d. in the £1 (b) *Incomes in excess of £4,000*—30d. in the £1 on the first £4,000, and 36d. in the £1 on the balance	Income. — Rate per £1 Up to £400 .. 5d. Over £400, up to £700 .. 7d. Over £700 up to £1,000 .. 9d. Over £1,000 up to £5,000 .. 1s. 2d. Over £5,000 up to £10,000 .. 1s. 7d. Over £10,000 .. 1s. 10d.	(a) *Incomes not exceeding £7,766*— The rate for £101 is 2.006d. and increases by .006d. for each additional £1 of income (b) *Incomes exceeding £7,766*, 4s. in the £1 (c) *Incomes of married taxpayers with a dependent* amounting to £157 and no more, tax must not exceed 10s.	Income. — Rate per £1 Under £150 .. 3d. £150, under £250 .. 4d. £250 under. £350 .. 4½d. £350, under £400 .. 5½d. £400, under £700 — 5½d. on first £400; 6½d. on balance £700, under £900 — 5½d. on first £400; 6½d. on next £200; 7½d. on balance £900, under £1,000 — 5½d., 6½d., as before; 7½d. on next £200; 9½d. on balance £1,000 and under £1,500 — 5½d. to 7½d. as before; 9½d. on next £200; 11½d. on balance £1,500 and under £2,000 — 5½d. to 9½d. as before; 11½d. on next £500; 1s. 1d. on balance £2,000 and over — 5½d. to 11½d., as before; 1s. 1d. on next £500; 1s. 3d. on balance

CONSPECTUS OF INCOME TAX ACTS

Particulars.	Commonwealth.	New South Wales.	Victoria.
22. Basic Rates of *Taxation on Incomes* from Property	(a) *Incomes not exceeding £546.*—Average rate per £1 is $R = \left\{3 + \frac{I}{181 \cdot 058}\right\}$d., where R = rate of tax in pence and I = income in £1 (b) *Incomes exceeding £546*, but not exceeding £2,000, additional tax for each £1 above £546 increases continuously in a curve of the *second degree* (c) *Incomes exceeding* £2,000 but not exceeding £6,500.—Additional tax for each £1 above £2,000 increases continuously in a curve of the third degree (d) *Incomes in excess of* £6,500.—6d. in the £1 for each £ in excess of £6,500	The same rates as for incomes *from personal exertion* with the addition of one-third	Double the rates for incomes *from personal exertion*
23. Basic Rates of Taxation on Incomes of Companies	(a) *Undistributed Income.*—2s. 8d. in the £1 (b) *Income distributed to Absentee Members.*—8d. in the £1	2s. in the £1	1s. in the £1 .. ..
24. Super-taxes ..	Twenty-five per cent., then 30 per cent. on increased rates, then 5 per cent. on such further increased rates, equal to a total of 70.625 per cent.	6d. in the £1	..
25. Taxation on Lottery Prizes, Absentees, etc.	*Lottery Prizes.*—Fourteen per cent. of the gross prize money	..	..

CONSPECTUS OF LAND TAX ACTS

Particulars.	Commonwealth.	New South Wales.	Victoria.
1. Acts in Force ..	Land Tax Assessment Act 1910, 1911, 1912, 1914, 1916 Land Tax Act 1910, 1914, 1918, 1920	Land and Income Tax *Assessment Act* 1895, 1897, 1904 Land Tax Act 1895, 1900 (2), 1902	Land Tax Act 1915 (2), 1916, 1918, 1920
2. Definitions ..	(a) *Absentee*, a person who does not reside in Australia, or is absent therefrom when the ownership of his land is determined or has been absent during half the year preceding that date (b) *Owner* includes every person who is entitled to the land for any estate of freehold in possession or is entitled to receive the rents and profits thereof, whether as beneficial owner, trustee, mortgagee in possession or otherwise	(a) *Owner* means any person who is— (i) entitled to land for any estate of freehold in possession; or (ii) entitled as aforesaid as a married woman, otherwise than through trustees; or (iii) a settlor, guarantor, or transferror in any settlement, etc., not made *bona fide*; or (iv) entitled to land partly in one and partly in another of the aforesaid ways; or	(a) *Owner* means— (i) every person entitled to land for estate of freehold in possession; or (ii) every person entitled to land under conditional purchase; or (iii) every settlor, grantor, assignor or transferror of land in any settlement, etc., not made *bona fide* for valuable consideration; or (iv) every person entitled as aforesaid to land subject to any mortgage; or

IN FORCE IN AUSTRALIA, 1921—*continued.*

Queensland.	South Australia.	Western Australia.	Tasmania.
(*a*) ***Incomes up to £3,000.***—On the first £1 the rate is 12 4/1000d., and it increases progressively by 4/1000d. for each additional £1 of income up to £3,000 (*b*) ***Incomes from*** £3,001 to £4,000.—The rate is 24 6/1000d. on £3,001, increasing progressively by 6/1000d. until £4,000 is reached (*c*) ***Incomes in excess of*** £4,000.—The rate is 30d. in the £1 on the first £4,000 and 36d. in the £1 on the balance	Income. — Rate per £1. Up to £400 .. 10d. Over £400 up to £700 — 1s. Over £700 up to £1,000 — 1s. 3d. Over £1,000 up to £5,000 — 1s. 7d. Over £5,000 up to £10,000 — 1s. 10d. Over £10,000 .. 2s. 3d.	Same as on incomes from personal exertion	Income. — Rate per £1. Under £250 — 8d. £250 up to £400 — 8d. on first £250; 10d. on balance £400 up to £600 — 8d. on first £250; 10d. on next £150; 1s. on balance £600 and over — 8d. on first £250; 10d. on next £150; 1s. on next £200; 1s. 3d. on balance
(*a*) *Ordinary Companies.* 1s. 3d. in the £1 where profits do not exceed 6 per cent., increasing by 1½d. for each 1 per cent. increase in profits to a maximum of 3s. where profits exceed 19 per cent. (*b*) ***Public Utility and Monopoly Companies.***—Same, but rate increases by 3d. up to maximum of 4s., when profits exceed 16 per cent. (*c*) ***Mutual Life Assurance Companies.***—1s. 6d. in the £1 (*d*) ***Foreign companies.***—24d. in the £	(*a*) *Ordinary Companies.*—Same rates as on incomes derived from property (*b*) *Life Insurance Companies.*—Half the rates as on incomes derived from property	(*a*) *Ordinary Companies.*—1s. 3d. in the £1 (*b*) ***Insurance (except Life Insurance) Companies.***—£2 for every £100	1s. 3d. in the £1
Twenty per cent., except for mutual life assurance companies and persons (not company or absentee) with incomes not exceeding £200	Twenty-five per cent. ..	Fifteen per cent., except on incomes not exceeding £204, without deductions for insurance premiums, business premises, children, or rates and taxes	(*a*) *Persons with Incomes of £200 and over.*—One-tenth additional (*b*) *Companies.* — One-fifth additional
Absentees.—Tax on income from personal exertion is levied on the same scale as on income from property	..	(*a*) ***Absentees.***—Fifty per cent. additional (*b*) ***Stakes Won in a Horse Race.***—4d. in the £1	***Lottery Prizes.***—2s. in the £1

IN FORCE IN AUSTRALIA, 1921.

Queensland.	South Australia.	Western Australia.	Tasmania.
Land Tax Act 1915, 1918, 1920	Taxation Act 1915, 1917, 1918	Land and Income Tax Assessment Act 1907, 1917, 1918 Land and Income Tax Act 1920	Land and Income Taxation Act 1910, 1911 Land Tax and Income Tax Act 1912
(*a*) ***Absentee,*** a person who ordinarily does not reside in Australia, or is absent therefrom where the ownership of his land is determined or has been absent during more than half of the year immediately preceding that date (*b*) ***Owner*** includes every person who jointly or severally, is— (i) entitled to land for any estate of freehold in possession; or	(*a*) ***Absentee,*** includes every person who has been absent from or resident out of the State for at least twelve months immediately prior to the date as of which any assessment is made (*b*) ***Owner*** includes any party (not being a mortgagee) legally or equitably seized of, or possessed of, or entitled to or to purchase or acquire the estate or interest referred to	(*a*) ***Owner*** includes every person who is, jointly or severally, whether at law or in equity— (i) entitled to land for any estate of freehold in possession; or (ii) entitled to land for any leasehold estate under the *Land Act*; or (iii) entitled to land as a married woman, except through trustees; or	(*a*) *Owner* includes any person who is— (i) entitled to any estate of freehold in possession; or (ii) entitled to any leasehold under the *Closer Settlement Act*; or (iii) entitled to land as a married woman, not through trustees; or (iv) a settlor, grantor, assignor or transferror in any settlement, etc., not made *bona fide*; or

CONSPECTUS OF LAND TAX ACT

Particulars.	Commonwealth.	New South Wales.	Victoria.
2. Definitions—*continued.*	(*c*) *Unimproved value,* the capital sum which the fee-simple of the land might be expected to realize, if offered for sale on reasonable terms assuming that improvements had not been made	(v) entitled to receive rents and profits as a beneficiary owner, trustee, mortgagee in possession or otherwise (*b*) *Unimproved value,* the capital sum for which the fee-simple would sell under reasonable conditions, assuming that improvements had not been made	(v) every person so entitle partly in one and partly i another of the foregoin ways (*b*) *Unimproved Valu* means the sum which th owner's estate or interest, i unencumbered, might be ex pected to realise if offered o reasonable terms, assumin that improvements had no been made. That of lan under Crown lease or license i the same after deducting th amount of purchase mone which is not due
3. Administration of Act	The Act is administered by a Commissioner of Land Tax, subject to the control of the Minister	The Act is administered by three Commissioners	The Commissioner of Taxe under the Income Tax Act i also the Commissioner for Lan Tax, unless the Governo appoints some other person
4. Liability for Taxation	Every owner of land is liable for taxation on the unimproved value thereof, after deducting the sum of £5,000, excepting that no deduction is allowed in the case of an owner, who is an absentee	Land tax must be paid on the unimproved value of land, after deducting £240, except in municipalities and shires, the councils of which levy a general rate on the unimproved capital value of all rateable property. The amount of income tax leviable upon any interest on a mortgage may also be deducted	Every owner of land, th value of which exceeds £25 must pay land tax based o the unimproved value. Whe the value exceeds £250, deduction of £250 is allowed diminishing by £1 for every £ of value in excess thereof, s that when the value is £500 o over, no deduction is allowe
5. Lands exempted from Taxation	(*a*) Land owned by a State or municipal, local, or other public authority (*b*) Land owned by a State Savings Bank (*c*) Land owned by a registered Friendly Society or Trade Union (*d*) Land owned by a registered Building Society, unless obtained by foreclosure of a mortgage (*e*) Land owned by or in trust for a charitable or educational institution, if not carried on for profit (*f*) Land owned by or in trust for a religious society, for superannuation purposes, or for religious or educational purposes (*g*) Land used as a site for (i) a place of worship or residence for clergy or a religious order or society; (ii) a charitable or educational institution not carried on for profit; (iii) a building owned and occupied by a club or society not carried on for profit; (iv) a public library, institute or museum; (v) a show ground; (vi) a public cemetery or burial ground; (vii) a public garden, recreation ground, or reserve; (viii) a public road; (ix) a fire brigade station	(*a*) Crown lands not subject to right of purchase and lands held by conditional or special lease or homestead selections (*b*) Land vested in His Majesty (*c*) Land vested in the Railway Commissioners (*d*) Public roads, reserves, and parks, cemeteries, and commons (*e*) Land used for pounds, public hospitals, benevolent institutions, public charitable purposes, churches, chapels, universities, and affiliated colleges, Sydney Grammar School, mechanics' institutes, schools of arts, markets, town halls, and lands vested in a municipality, public hospital, university or affiliated colleges (*f*) Land vested in trustees for zoological, agricultural, pastoral, or horticultural show purposes, or other public or scientific purposes (*g*) Land used for the site of residence of a minister ministering at some place of public worship (*h*) Land used for a school attached to or connected with any place of public worship	(*a*) Land the property o His Majesty which is un occupied or used for publi purposes (*b*) Land used exclusivel for (i) commons; (ii) mine (iii) public worship; (iv mechanics' institutes or ar galleries; (v) public librarie (vi) cemeteries; (vii) agri cultural show grounds; (vii public gardens, domains, o other reserves; (ix) free primary schools; (x) charitabl purposes; (xi) the purpose of any club for cricket, foot ball, golf, bowling, tennis, o other athletic recreation, i the revenue is not applied b way of profit to individua members; (xii) public tech nical and working men' schools and colleges and schools and colleges affiliated with the University of Mel bourne; (xiii) the University of Melbourne

IN FORCE IN AUSTRALIA, 1921—*continued.*

Queensland.	South Australia.	Western Australia.	Tasmania.
(ii) entitled to receive rents and profits, as beneficial owner, trustee, mortgagee in possession or otherwise (*c*) *Unimproved Value*, the capital sum which the fee-simple might be expected to realize if offered for sale on reasonable terms, assuming that improvements had not been made	(*c*) *Unimproved Value*, the capital amount for which the fee-simple might be expected to sell, if free from encumbrances, assuming that the actual improvements had not been made	(iv) a settlor, grantor, assignor or transferror of land in any settlement, etc., not made *bona fide*; or (v) entitled to land partly in one and partly in another way; or (vi) entitled to receive rents and profits as beneficial owner, trustee, mortgagee in possession or otherwise (*b*) *Unimproved Value*— (i) Land in fee-simple, the capital sum for which the fee-simple would sell under reasonable conditions without improvements* (ii) Conditional purchase, the same assuming that the taxpayer was owner of the fee-simple (iii) Leasehold, twenty times the amount of annual rent	(v) entitled to land partly in one and partly in another way; or (vi) in possession or occupation of land held under any authority from the Governor of New South Wales or Lieutenant-Governor of Tasmania; or (vii) the holder of Crown land purchased on credit; or (viii) entitled to receive rents and profits as beneficial owner, trustee, mortgagee in possession or otherwise; or (ix) in possession of land under lease for not less than ten years (*b*) *Unimproved Value*, that ascertained under the *Land Valuation Act*
The Act is administered by a Commissioner of Land Tax	The taxes are under the control, direction and management of the Commissioner of Taxes	The provisions of the Act are carried out by the Commissioner of Taxation	The collection and recovery of taxes is under the control, direction and management of the Commissioner of Taxes
Land Tax is leviable on the unimproved value of all lands. A taxpayer, not being a company or absentee, may deduct £300. In ascertaining the taxable value of undeveloped land, the amount of exemption must bear the same proportion to £300 as the total value of all the undeveloped land bears to that of all the land held by the same taxpayer	Land tax is imposed upon the unimproved value of all land, including land of the Crown while subject to any agreement for sale or right of purchase, as well as perpetual leases	Every owner of land, the unimproved value of which does not exceed £50, is liable for land tax on such value. Every owner of improved land is entitled to a rebate of one half of the tax on the unimproved value. Improved lands outside a municipality used for agricultural, horticultural, pastoral or grazing purposes are assessed after deducting £250	Every person whose name appears in any district valuation roll under the provisions of the *Land Valuation Act* is liable to be taxed on the unimproved value of his land
(*a*) Land owned by the Commonwealth, the State or a local or other public authority (*b*) Land owned by or in trust for a registered Friendly Society (*c*) Land owned by or in trust for a Trade Union not used for pecuniary profit (*d*) Land owned by or in trust for a registered Building Society, not obtained by foreclosure of a mortgage (*e*) Land owned by or in trust for a charitable or educational institution, if not carried on for profit (*f*) Land owned by or in trust for a religious society used for superannuation, religious, charitable, or educational purposes (*g*) Land used as a site for (i) a place of worship or place of residence of a minister or religious order; (ii) a charitable or educational institution not carried on for profit; (iii) a building owned and occupied by a society, club, or association not carried on for profit; (iv) a public library, institute or museum; (v) a show ground; (vi) a public cemetery; (vii) a public garden, recreation ground, or reserve; (viii) a public road; (ix) a fire brigade station	(*a*) Crown land which, for the time being, is not subject to any agreement for sale or right of purchase (*b*) Park lands, public roads, public cemeteries, and other public reserves (*c*) Land used solely for religious or charitable purposes or used by any institute under the provisions of the *Public Library, Museum, and Art Gallery and Institutes Act* (*d*) Land exempted by special legislation from taxation	(*a*) Lands owned by or on behalf of His Majesty (*b*) Lands held under contract for conditional purchase for five years from date of contract, but this does not apply to a taxpayer holding less than 1,000 acres of cultivable or 2,500 acres of grazing land (*c*) Public roads, reserves, and parks, university endowments, cemeteries, and commons (*d*) Lands used for a public hospital, a benevolent institution, a public charitable purpose, a church, a chapel, a site of a ministering clergyman, a school connected with a place of public worship, a mechanics' institute, or a school of arts; land belonging to and occupied by a religious body; lands on which are erected a State or municipal market, town hall, or municipal council chamber; land owned by or vested in a municipal corporation, road board, or other statutory body (*e*) Lands held as mining tenements under the *Mining Act* (*f*) Lands used for zoological, agricultural, pastoral, or horticultural show purposes or other public or scientific purposes	(*a*) Crown lands which for the time being, are not subject to lease, agreement for sale or right of purchase (*b*) Land the property of and occupied by or on behalf of His Majesty (*c*) Land held under lease or licence granted under any Act except the *Closer Settlement Act* (*d*) Public roads, public cemeteries not the property of a company, and public recreation grounds and reserves (*e*) Land on which is built any hospital, benevolent asylum, or building used solely for charitable or religious purposes (*f*) Land vested in trust for public purposes (*g*) Land on which is built any public library or museum (*h*) Land the property of a registered Friendly Society (*i*) Land owned by a local authority or other local governing or statutory public body (*j*) Land used exclusively for holding public exhibitions not for the purpose of gain (*k*) Crown land situate beyond the limits of any town subject to a contract to purchase on credit until seven years from the date of contract have elapsed

CONSPECTUS OF LAND TAX ACTS

Particulars.	Commonwealth.	New South Wales.	Victoria.
6. Returns ..	Every taxpayer must annually furnish returns of the improved and unimproved values of every parcel of land owned by him. Where he has furnished full returns in any one year, he may in the two succeeding years furnish supplementary returns	The Commissioners must give 30 days' notice of the time and place at which all taxpayers must furnish returns. Should a taxpayer fail to do so, the Commissioner may appoint some person to make a return on his behalf	Returns must be furnished by every land-owner, and no person is released from his liability to make returns by reason that he is, in consequence of exemptions or deductions, not liable to pay tax. The Commissioner may also cause valuations of land to be made
7. Payment of Tax..	One month's notice must be given of the date upon which land tax is payable. If the amount due is not paid within 30 days after due date, 10 per cent. is added to the amount of tax	The Commissioners must post notice of assessment to each taxpayer. Tax must be paid within 60 days of date of notice, otherwise 10 per cent. is added. When tax is in arrears for two years, the Commissioners may advertise that if it is not paid within one year they will let the land for not exceeding three years or apply to the Supreme Court for a sale thereof	Not less than 14 days' notice must be given of the date on which land tax is payable. If the tax is not paid at the expiration of 14 days after the due date thereof, 8 per cent. is added thereto.
8. Acquisition of Land, when Value is understated	If the Commissioner is of opinion that the owner has understated the unimproved value to the extent of 25 per cent. or more, he may apply to the Supreme Court, which may make a declaration that the land be vested in the Commonwealth. The owner is compensated by adding the value of improvements to the unimproved value stated in his return plus 10 per cent. Such acquired land must be offered for three months to the State in which it is situate	No provision	No provision .. ..
9. Appeals ..	Any taxpayer or person may appeal to the High Court in its original jurisdiction or to the Supreme Court or a County Court or a District Court of a State or such other Court as is proclaimed. Land tax may be levied as if no appeal were pending	A taxpayer may, within 30 days after notice of assessment, appeal to a Court of Review consisting of the Land Appeal Court or a Police Magistrate. On a question of law, further appeal may be made to the Supreme Court	Objections to assessment must be lodged with the Commissioner, and those not allowed by him are heard and determined by an Assessment Court consisting of a Judge of County Courts or a Police Magistrate and two persons having a knowledge of the value of land and of improvement values. An appeal to the Supreme Court on questions of law is allowed

IN FORCE IN AUSTRALIA, 1921—*continued.*

Queensland.	South Australia.	Western Australia.	Tasmania.
Every owner of land of the unimproved value of £200 and upwards must furnish returns shewing the unimproved and improved value of each parcel, also the value of improvements. A taxpayer who has furnished full returns in any year may in future furnish supplementary returns. If a taxpayer fails to furnish a return within the prescribed time, 5 per cent. is added to the tax, and if not furnished within 60 days 10 per cent.	Every taxpayer must, within the prescribed time, furnish a return containing such particulars as will enable the Commissioner to estimate the amount of tax to be paid by him. The Commissioner must also make an assessment of all land liable to land tax every fifth year	The Commissioner must give not less than 30 days' notice of the time and place at which all taxpayers must furnish returns. Every taxpayer must furnish a return, otherwise the Commissioner may appoint a person to do so on his behalf	The Commissioner may require any taxpayer to furnish any information in writing or by verbal communication
Not less than 30 days' notice must be given of the date on which land tax is payable. If a taxpayer fails to pay his tax within 30 days after it has become due, 10 per cent. is added thereto	Land Tax must be paid by the 14th February in each year. If any taxes are in arrear for 21 days after particular notice to the taxpayer, the Commissioner may without warrant distrain upon the goods and chattels of the taxpayer. If any tax is not paid before the end of one month after it falls due, 10 per cent. is added and interest at 10 per cent. per annum. When a tax is in arrear for two years the Commissioner may advertise that if not paid within one year, he will let the land from year to year or apply to the Supreme Court for a sale	The Commissioner must give each taxpayer a notice of assessment with the amount of tax and date when payment is due. If the tax is not paid within 30 days after it is due, 10 per cent. is added thereto. Whenever any tax is unpaid for two years, the Commissioner may advertise that if not paid within one year, he will let the land for not exceeding three years or apply to the Supreme Court for the sale thereof	The Commissioner must forward a demand by post, setting forth the amount due and the place where payment is to be made. If the tax is not paid within 30 days after demand, proceedings may be taken for the recovery thereof. Whenever land tax is in arrear for six months, the Commissioner may advertise that if it be not paid within six months he will let the land from year to year, or after two years apply to the Supreme Court for a sale thereof
If the Commissioner is of opinion that the owner has understated the unimproved value of his land to the extent of 25 per cent. or more, he may apply to the Supreme Court for a declaration that the State is entitled to the land. If the Court vests such land in the Crown, the owner is compensated upon the basis of the unimproved value stated in his return with the value of the improvements, plus 10 per cent. An appeal lies to the Full Court	No provision	No provision	No provision
Any taxpayer or person may appeal to the Land Court against any assessment made by the Commissioner, but land tax may be levied and recovered on the assessment as if no appeal were pending. Further appeal allowed to the Land Appeal Court	A taxpayer may appeal within two months after the notice of assessment. Appeals are heard and determined by a special Local Court of Full Jurisdiction consisting of a Special Magistrate and two Justices skilled in the valuation of land and property. A special case may be stated for the opinion of the Supreme Court	A taxpayer may, within 30 days after the notice of assessment, appeal to the Court of Review, consisting of any magistrate of a Local Court, provided that one half of the tax and of any fines are deposited with the Commissioner. A further appeal on a question of law may be made to the Supreme Court	Objections are to be sent to the Commissioner, who, in the event of his disallowing them, transmits them to the Court of Review consisting of any Judge of the Supreme Court or of any Commissioner of a Court of Requests. An appeal may be made on a point of law to the Supreme Court

CONSPECTUS OF LAND TAX ACTS

Particulars.	Commonwealth.	New South Wales.	Victoria.
10. Remission of Tax in cases of Hardship	Where a taxpayer has become bankrupt or insolvent or has suffered such loss that the exaction of the full amount of tax would entail serious hardship, or that, by reason of drought or adverse seasons the returns from the land have been seriously impaired, a Board consisting of the Commissioner, the Secretary to the Treasury, and of the Comptroller-General of Customs may release him wholly or in part from his liability	No provision	Where it is shewn to the satisfaction of the Commissioner that a taxpayer has suffered such loss from bush fires, drought, floods, or other calamity that the exaction of the full amount of tax would entail serious hardship, he may release such taxpayer wholly or partly from his liability or may postpone the payment of the tax
11. Offences and Penalties	(a) Failing to furnish a return, refusing or neglecting to give evidence or to answer questions, wilfully making false returns or false answers, *not exceeding £100* (b) Understating the unimproved value with intent to defraud or evading taxation, not exceeding £500 and treble the amount of tax evaded, or forfeiture of the land undervalued or part thereof	(a) Failing to furnish a return, not exceeding £20 (b) Knowingly making a false return or answer or evading assessment or taxation, not exceeding £100 and treble the amount o tax evaded	(a) Refusing or neglecting to give evidence when required or to answer questions or to furnish a return, not less than £2 nor more than £100 (b) Knowingly making a false return or answer or evading full assessment or taxation or the payment of tax, not less than £2 nor more than £100 and treble the amount of tax evaded
12. Ordinary Rates of Taxation	(a) *When the owner is not an Absentee,*— (i) Not exceeding £75,000. The rate is 1 1/18,750d. per £1: where the taxable value is £1, and increases uniformly by 1/18,750d. for each £1 in excess. The formula is: where R is the rate of tax in pence and V the taxable value in pounds $R = \left\{1 + \frac{V}{18,750}\right\}$ pence (ii) Exceeding £75,000. For each £1 of taxable value exceeding £75,000, the rate is 9d. (b) *When the owner is an Absentee*— (i) Not exceeding £5,000, the rate is 1d. per £1. (ii) Exceeding £5,000 but not £80,000, for so much exceeding £5,000 the rate per £1 is 2 1/18,750d. for an excess of £1, increasing uniformly by 1/18,750d. for each additional £1 (iii) Exceeding £80,000, for each £1 in excess the rate is 10d.	One penny in the £1 of the unimproved value	Where the unimproved value exceeds £250, the rate is one half-penny in every £1 thereof, with a minimum tax of 2s. 6d.
13. Super-taxes ..	20 per cent. additional ..	..	..

IN FORCE IN AUSTRALIA, 1921—*continued.*

Queensland.	South Australia.	Western Australia.	Tasmania.
In any case where a taxpayer has become insolvent or has suffered such loss that the exaction of the full amount of tax would entail serious hardship, or that, by reason of drought or adverse seasons or other adverse conditions the returns from the land have been seriously impaired, the Commissioner may release such taxpayer wholly or partly from his liability	No provision	No provision	No provision
(*a*) Failing to furnish a return or refusing or neglecting to attend and give evidence when required or wilfully making a false return or answer, not exceeding £100 (*b*) Understating, with intent to defraud, the unimproved value, or wilfully evading taxation, not exceeding £500 and treble the amount of tax evaded, or forfeiture of the land undervalued or part thereof	(*a*) Failing to furnish a return, not exceeding £20 and treble the amount of tax payable (*b*) Wilfully furnishing a false return or declaration, punishable as for wilful and corrupt perjury	(*a*) Failing to furnish a return within the prescribed time, not exceeding £20 (*b*) Wilfully making a false statement for the purpose of evading assessment or taxation, not exceeding £100 and treble the amount of tax evaded	(*a*) Failing to furnish a return within the prescribed time, not exceeding £20 (*b*) Wilfully making a false statement or answer or fraudulently evading taxation, not exceeding £100, and treble the amount of tax evaded (*c*) Making a false declaration, imprisonment not exceeding three years or fine not exceeding £100
(*a*) *Ordinary Rate*—Where the taxable value is— Rate per £1 Less than £500 .. 1d. £500 and less than £1,000 .. .. 1¼d. £1,000 and less than £2,000 .. .. 1½d. £2,000 and less than £2,500 .. .. 2d. £2,500 and less than £3,000 .. .. 2¼d. £3,000 and less than £4,000 .. .. 2½d. £4,000 and less than £5,000 .. .. 2¾d. £5,000 and less than £10,000 .. .. 3d. £10,000 and less than £20,000 .. .. 3½d. £20,000 and less than £30,000 .. 4d. £30,000 and less than £50,000 .. .. 4½d. £50,000 and less than £60,000 .. .. 5d. £60,000 and less than £75,000 .. .. 5½d. £75,000 and over .. 6d. (*b*) *Agricultural Land* of less value than £750— Where taxable value is— Less than £500 .. ½d. £500 or less than £750 1d. (*c*) *Undeveloped Land*—Additional 2d. in the £1 and no deductions allowed	(*a*) *Land Tax*—One halfpenny in the £1 on the unimproved value. (*b*) *Additional Land Tax*—One half-penny in the £1 in addition for all land the unimproved value of which exceeds £5,000 (*c*) *Absentee Land Tax*—20 per cent. is added to the amount of land tax and additional land tax	(*a*) *Land Tax*—One penny in the £1 on the unimproved value (*b*) *Pastoral Leases*—One penny for every £1 of a sum equal to twenty times the amount of annual rent reserved by the lease (*c*) Absentees, 50 per cent. additional	Value of Land. Rate per £1 Up to £2,500 .. .. 1d. £2,501 and up to £5,000 1¼d. £5,001 and up to £15,000 1½d. £15,001 and up to £20,000 .. .. 1¾d. £30,001 and up to £50,000 .. .. 2d. £50,001 and up to £80,000 .. .. 2¼d. Over £80,000 .. 2½d.
Taxable Value. Rate per £1 £2,500 and less than £3,000 .. .. 1d. £3,000 and less than £4,000 .. .. 1½d. £4,000 and over .. 2d.	..	15 per cent. additional	..

CONSPECTUS OF PROBATE AND SUCCESSION

Particulars.	Commonwealth.	New South Wales.	Victoria.
1. Acts in force ..	Estate Duty Assessment Act 1914, 1916 Estate Duty Act 1914	Stamp Duties Act 1920 Stamp Duties (Deductions) Act 1904 Companies (Death Duties) Act 1901	Administration and Probate Act 1915
2. Administration of Act	The Commissioner of Taxation has general administration, subject to the control of the Minister	The Commissioner of Stamps is charged with the levying and collection of duties	The Commissioner of Taxes appointed under the *Income Tax Act*
3. *Property* of a deceased person which is liable for Duty	(*a*) His real property in Australia (*b*) His personal property, wherever situate, if he was at the time of his death domiciled in Australia (*c*) His personal property in Australia, including all debts, money and choses in action receivable or recoverable in Australia, if he had at the time of his death a foreign domicile (*d*) Property which passed from him by any gift *inter vivos* or settlement made within one year before his decease, if being property comprised in a settlement under which he was tenant for life, the life interest of which was surrendered by him to the remaindermen within one year before his decease (*e*) Property in which he had a beneficial interest and which passed after his decease to any other person	(*a*) All his property in New South Wales (*b*) All property which he has disposed of by will or settlement (*c*) Any property comprised in a gift made within three years before his death without full consideration (*d*) Any property passing under any disposition— (i) by which an interest is reserved for his life; or (ii) which is accompanied by a reservation of any benefit for him for his life; or (iii) by which he has reserved the right to restore to himself the property (*e*) Any property comprised in a gift of which *bona fide* possession has not been immediately assumed and retained (*f*) Any property comprised in a *donatio mortis causa* (*g*) Any property which he has vested *jointly so that the* beneficial interest passes by survivorship to any person (*h*) Any property in which he had an interest limited to cease at his death unless such disposition was made *bona fide* or within three years before his decease (*i*) Any money payable under an insurance policy (*j*) *An annuity to* the extent of the beneficial interest arising by survivorship of another person (*k*) Any property over which he had a general power of appointment (*l*) Any property which he has within three years before his death transferred in consideration of shares or other interest	(*a*) The real and personal property of which his estate consisted at his death (*b*) Property conveyed by gift, assignment, etc., which purports to operate as an immediate gift *inter vivos*— (i) if made within twelve months preceding his death or (ii) if relating to property of which *bona fide* possession has not been assumed and retained (*c*) All property which he has voluntarily transferred to or vested in himself and another person jointly so that a beneficial interest therein passes by survivorship to such other person (*d*) All property over which he had a general power of appointment (*e*) Any property conveyed or given with intent to evade the Act, and all property the subject matter of a *donatio mortis causa*
4. Exemptions from Duty	(*a*) Estates under £1,000 in value (*b*) So much of an estate as is devised or bequeathed or passes by gift *inter vivos* or by settlement for religious, scientific, charitable or public educational purposes	The estate of a deceased person, who at the time of his death was domiciled in New South Wales, the final balance of which does not exceed £1,000, but this does not apply to property separately assessed	(*a*) Estates and settlements which do not exceed £200 in value (*b*) The share of the widow and children and grandchildren when the amount does not exceed £500, both in the case of estates and settlements (*c*) Public charitable bequests and settlements

DUTIES ACTS IN FORCE IN AUSTRALIA, 1921.

Queensland.	South Australia.	Western Australia.	Tasmania.
Succession and Probate Duties Act 1892, 1895, 1904, 1906, 1915, 1918, 1920	Succession Duties Act 1893, 1915, 1917, 1919	Administration Act 1903, 1909	Deceased Persons' Estates Duties Act 1915, 1916, 1917
The Attorney-General is charged with the administration. The duties are under the care and management of the Commissioner of Stamps	The Act is administered by the Registrar of Probates	The Commissioner of Stamps administers the portion of the Act relating to duties on deceased persons' estates and succession duties	The Act is administered by the Commissioner of Taxes
(*a*) His real property, including all freehold, leasehold and other hereditaments in Queensland (*b*) His personal property, including all moneys payable (*c*) Any beneficial interest in a property vested in joint tenants (*d*) The accretion of interest in a fund to which there is joint contribution with survivorship (*e*) The accretion of interest in a property which is purchased jointly with remainder to the survivor in fee-simple (*f*) Property disposed of under general powers of appointment (*g*) The increase of benefit accruing to any person upon the extinction or determination of any charge determinable by his death (*h*) Dispositions accompanied by the reservation of a benefit to the grantor, etc. (*i*) Dispositions made to take effect at periods depending on death, or for the purpose of evading duty (*j*) Dispositions of property made less than two years before death and purporting to operate as an immediate gift	(*a*) His real property in the State, including that over which he had a general power of appointment (*b*) His personal property, wherever situate, including that over which he had a general power of appointment, if he was at the time of his death domiciled in the State. (*c*) His personal property in the State, if he had at the time of his death a foreign domicile (*d*) Property disposed of by way of *donatio mortis causa* (*e*) Property comprised in settlements (*f*) Property under a deed of gift, if he dies within twelve months after the date of such gift (*g*) The net present value of the increase of benefit accruing to any person by the extinction or determination of any charge, encumbrance, etc. (*h*) The beneficial interest in any property vested in any persons jointly, which accrues to the other person by survivorship (*i*) The net present value of an annuity purchased by the deceased	(*a*) The final balance of his real and personal estate (*b*) The net value of all property the subject-matter of a gift by way of a *donatio mortis causa* (*c*) Property, including real and personal property over which he had a general power of appointment, comprised in a settlement or deed of gift in so far as it comprises— (i) his real property in the State ; (ii) his personal property wherever the same is, if he was at the time of the settlement or gift domiciled in the State ; (iii) his personal property in the State, if he had not at the time of settlement or gift a domicile within the State (*d*) Property conveyed in order to evade duty. This is deemed to be a deed of gift, and any property thereunder is liable to duty as if the donor had died within six months from the date thereof and double duty is payable thereon (*e*) Property given or accruing to any person under a deed of gift within six months of his death, except in cases of death by accident	(*a*) His real estate in the State (*b*) His personal estate, wherever situate, if he was, at the time of his death, domiciled in the State (*c*) His personal estate in the State, if he was, at the time of his death, domiciled elsewhere (*d*) Estate over which he had a general power of appointment included in (*a*), (*b*) and (*c*) (*e*) Property disposed of by way of *donatio mortis causa* (*f*) Voluntary dispositions purporting to operate as an immediate conveyance or gift *inter vivos*, which had not been *bona fide* made within three years before his death (*g*) Property which has been conveyed to or invested in himself and another person jointly, so that the beneficial interest accrues by survivorship to that other person (*h*) Property settled on another, by which he reserves to himself the right to reclaim such property (*i*) Property which he has within three years preceding his death transferred to or vested in a company (*j*) Property taken under any gift from him of which *bona fide* possession and enjoyment have not been immediately assumed and retained
(*a*) Estates under £200 in value pay no succession duty, and those under £300 no probate duty (*b*) Successions of less value than £20 (*c*) Persons beneficially entitled to real property subject to leases for life (*d*) Property subject to a trust for any charitable or educational institution in Queensland	Property derived by a widow, widower, descendant, or ancestor of the deceased, the net present value of which is under £500	(*a*) Any legacy consisting of books, prints, pictures, statues, gems, coins, medals, specimens of natural history or other specific articles to any institution under control of the Government or of a board appointed or partly appointed by the Government (*b*) Any legacy whatsoever bequeathed to any University	(*a*) Estates where the total value after deducting all debts does not exceed £500 (*b*) Money payable by a Friendly Society upon the death of a member or of the wife or child of a member (*c*) Any public charitable bequest, settlement or gift

CONSPECTUS OF PROBATE AND SUCCESSION

Particulars.	Commonwealth.	New South Wales.	Victoria.
5. Reduction of Duty to Relatives of the Deceased	The duty is assessed at two-thirds of the ordinary rate on so much of the estate as passes to the widow or children or grandchildren of the deceased	Where the final balance does not exceed £5,000, duty is calculated at half rates on property passing to the widow or any of the children under 21 years of age, but this does not apply where the deceased at the time of his death was not domiciled in New South Wales	(a) Where the amount due to the widow, child or grandchild from an estate or settlement does not exceed £2,000, the usual rate is reduced by one half (b) The rates for the aforesaid persons as regards estates are on a lower scale than those for other persons (c) On settlements there are three scales of duty (see § 10)
6. Returns ..	Every administrator must furnish a return of all the estate in Australia of the deceased person, giving the descriptions and values of the items comprising the estate before deducting any debts or other charges and distinguishing between secured and unsecured debts. If the administrator makes default in furnishing a return or the Commissioner is not satisfied therewith, or has reason to believe that any estate is dutiable, he may make an assessment on the amount on which, in his judgment, duty ought to be levied.	Applicant for probate or administration must lodge with his application an affidavit of value verifying an account containing particulars of the dutiable estate of the deceased and all allowances claimed. He must also furnish the Commissioner with such other evidence as may be required	Every executor and administrator must file with the Commissioner a statement specifying— (a) The real and personal property of which the estate consisted at the death of the deceased (b) All property chargeable with death duty (c) The value of the property in (a) and (b) (d) The debts and liabilities of the deceased (e) The relationship of the deceased to the persons entitled under the will or intestacy
7. Payment of Duty	Duty is due within 30 days after notice of assessment, but time may be extended up to two years and payment by instalments permitted. Duty is paid out of personal estate, but if there is not sufficient personal estate, the real estate may be mortgaged or permission obtained from the Court for the sale of the whole or a part thereof. If duty is not paid by final date, Court may allow Commissioner to sell sufficient of the estate to pay the duty	Duty is due on the assessment thereof by the Commissioner, or, if not so duly assessed within six months of death, on the expiration of six months thereafter. Duty is paid out of all real or personal property vested in the administrator who has the power of selling, leasing or mortgaging the same	The rules may prescribe the time and notice after which duty must be paid, and if the same is not paid within the time prescribed, the Commissioner may apply to the Court for an order to sell part of the estate for payment thereof. Unless the contrary is stated in the will, duty is payable out of the residue of the estate, but if there is no residue, the balance of duty may be deducted from each legacy or bequest
8. Objections and Appeals	An administrator may, within 30 days after service by post of the notice of assessment, lodge an objection with the Commissioner. An appeal against the Commissioner's decision to the High or Supreme Court is allowed within 30 days, but duty may be levied and recovered pending an appeal	Any person liable to the payment of duty and any administrator who is dissatisfied with the assessment of the Commissioner may, within 30 days after the date of assessment, require him to state a case for the opinion of the Supreme Court	An executor or administrator who is dissatisfied with a determination may within 30 days after such determination and upon payment of the duty appeal to the Supreme Court if the valuation is over £500 or to a County Court if such valuation does not exceed £500
9. Offences and Penalties	(a) Failing to furnish a return or refusing or neglecting to attend and give evidence when required, or knowingly making a false return or answer, not exceeding £100 (b) Understating the value of an estate with intent to defraud, or wilfully evading assessment or duty, not exceeding £500 or imprisonment up to three years	(a) Refusing to permit inspection of books, etc., not exceeding £50 (b) Fraudulently misstating the amount of property or debts, imprisonment not exceeding three years, or fine not exceeding £100	Making a false statement with intent to evade the payment of duties or to lessen the amount thereof, guilty of misdemeanour and liable to imprisonment with or without hard labour for not less than one nor more than three years or to a fine not exceeding £500

DUTIES ACTS IN FORCE IN AUSTRALIA, 1921—*continued.*

Queensland.	South Australia.	Western Australia.	Tasmania.
(*a*) Where the total value of the estate does not exceed £500, the wife or lineal issue pay no duty of any kind (*b*) Where the total value does not exceed £2,500 and the deceased was domiciled in the Commonwealth, the wife or lineal issue only pays half succession duty, and when it exceeds £2,500 but not £5,000, two-thirds	Where the property, either under a succession or a settlement or a deed of gift is under £2,000, and is taken by the widow or child under 21 years of age, half duty only is payable	Beneficial interests passing to persons *bona fide* residents of and domiciled in Western Australia, and occupying towards the deceased the relationship of parent, issue, husband, wife, or issue of husband or wife, only pay half duty on estates, settlements and deeds of gift	Separate scales of rates of duty are specified according to the relationship of the successor to the deceased, those for the widow, widower, descendant or ancestor being on the lowest scale
The persons accountable for the payment of duty must give notice to the Commissioner of their liability, and deliver a full account of the property, of the value thereof, and of the deductions claimed, with the relationship of the successors to the deceased. If they wilfully neglect to do so, they are liable to pay 5 per cent. upon the amount of duty payable, and a like penalty for every month during which such neglect continues after the first month	The persons becoming beneficially interested or the trustee must file a statement with the Registrar shewing all such particulars as he requires to enable him to assess the duty	(*a*) Every executor and administrator must furnish full particulars of— (i) the real and personal estate of the deceased ; and (ii) the debts due by him ; and (iii) the balance remaining after deducting debts ; and (iv) any further information required by the Commissioner (*b*) The trustee of a settlement or deed of gift must file a statement setting forth— (i) the net present value thereof ; and (ii) the net present value of any property given to an uncertain person or on an uncertain event ; and (iii) any further information required by the Commissioner	Same as Western Australia
The Commissioner assesses the duty, and if the same be not paid within 21 days after the duty has been finally ascertained, any person wilfully neglecting to do so is liable to pay a sum equal to 5 per cent. upon the amount of duty unpaid, and a like amount for every further month during which the duty is in arrears	Immediately after the Registrar has approved the statement and assesses the duty, the person filing such statement must pay the duty so assessed. Interest at the rate of 4 per cent. per annum is charged on all duty not paid within three months from the date on which it became payable	Duty is payable immediately after the Commissioner has made the assessment, but he may extend the time for payment. On application the Court may allow of the whole or part of the property being sold to pay the duty	Duty must be paid immediately after the Commissioner has made his assessment, but he may extend the time for payment up to one year or permit the payment in instalments. The executor or trustee may apply to the Supreme Court for an order that the whole or any part of a property subject to duty may be sold to pay the duty
An appeal against the assessment of the Commissioner may be made within 21 days after the date thereof to the Supreme Court of Queensland, unless the duty in dispute does not exceed £50 when such appeal may be made to the District Court	An appeal from any assessment or decision of the Registrar may be made within the prescribed time to the Supreme Court, but duty may be levied and recovered on the assessment as if no appeal were pending	Any person interested may appeal to the Supreme Court against any assessment or decision of the Commissioner otherwise his decision is final	Any executor, administrator or trustee who is dissatisfied with a determination or valuation of the Commissioner may appeal, within 21 days, to the Supreme Court
Failing or neglecting to furnish a return, or refusing or neglecting to give evidence when required or making an incorrect return, understating the value of an estate, making a false answer or omitting to set forth all the facts, not exceeding £100	**Failing or neglecting to file or amend any statement, to pay any duty payable or to register any settlement or deed of gift, not exceeding £500**	**(*a*) Making a false or fraudulent statement, with intent to evade duty, guilty of misdemeanour and liable to imprisonment up to three years and to a fine not exceeding £100** **(*b*) Failing to file a statement or to pay any duty or to register any statement or deed of gift, not exceeding £500**	**(*a*) Failing to file or amend any statement required, or to to pay any duty payable, or to register any settlement or deed of gift, not exceeding £500** **(*b*) Knowingly and wilfully making a false oath or declaration, guilty of perjury**

CONSPECTUS OF PROBATE AND SUCCESSION

Particulars.	Commonwealth.	New South Wales.	Victoria.
10. Rates of Duty ..	Where the value exceeds £1,000 but does not exceed £2,000, the rate is 1 per cent., and where it exceeds £2,000, 1 per cent. with an additional percentage of one-fifth of a pound for every £1,000 or part of £1,000 in excess of £2,000, but so that the maximum percentage must not exceed 15 per cent.	(a) Ordinary Rate— Value of Estate. Rate per cent. Exceeding— Not exceeding— £1,000 .. £5,000 .. 2 Increase of one-half per cent. for each £1,000 in excess up to— £9,000 .. £10,000 .. 4½ Increase of one-half per cent. for each £2,000 in excess up to— £18,000 .. £20,000 .. 7 Increase of one-half per cent. for each £5,000 in excess up to— £135,000 .. £140,000 .. 19 £140,000 .. £150,000 .. 19½ £150,000 .. .. 20 (b) Property disposed of by the deceased in exercise of a special power of appointment, where he was not the donor of the power nor entitled to any beneficial interest, must be separately assessed, and where the value does not exceed £2,000, the duty is 2 per cent., and when over £2,000 as above	(a) (i) Estates derived by widow or children; (ii) Settlements derived by widow, widower, descendant, or ancestor Value. Rate per cent. Exceeding— Not exceeding— £500 .. £1,000 .. 2 £1,000 .. £2,000 .. 3 £2,000 .. £3,000 .. 3⅓ £3,000 .. £4,000 .. 3⅔ £4,000 .. £5,000 .. 4 £5,000 .. £6,000 .. 4¼ £6,000 .. £7,000 .. 4½ £7,000 .. £8,000 .. 4¾ £8,000 .. £10,000 .. 5 Increase of one-fifth per cent. for each £2,000 in excess up to— £36,000 .. £40,000 .. 7 Increase of one-fifth per cent added for each £4,000 in excess up to— £76,000 .. £80,000 .. 9 Increase of one-fifth per cent for each £5,000 in excess up to £100,000 Exceeding £100,000 10 (b) (i) Estates derived by other relations and strangers; (ii) settlements taken by other relations— Value. Rate per cent. Exceeding— Not exceeding— £200 .. £300 .. 1½ £300 .. £400 .. 2 £400 .. £500 .. 2½ £500 .. £600 .. 3 £600 .. £800 .. 3⅓ £800 .. £1,000 .. 3⅔ £1,000 .. £1,500 .. 4 Increase of one-quarter per cent. for each £500 in excess up to— £4,500 .. £5,000 .. 5¾ £5,000 .. £6,000 .. 6 Increase of one-fifth per cent. for each £1,000 in excess up to— £18,000 .. £19,000 .. 9 £19,000 .. £20,000 .. 9½ Exceeding £20,000 .. 10 (c) Settlements taken by a stranger in blood, 10 per cent.

DUTIES ACTS IN FORCE IN AUSTRALIA, 1921—*continued.*

Queensland.

(*a*) Ordinary succession duty

Value of Estate. Exceeding—	Not Exceeding—	Rate per cent.
£199	.. £1,000 ..	2
£1,000	.. £2,500 ..	3
£2,500	.. £4,000 ..	3⅓
£4,000	.. £5,000 ..	3⅔

Increase of one-third per cent. for each £1,000 in excess up to—

£9,000	..£10,000 ..	5⅓

Increase of one-third per cent. for each £2,500 in excess up to—

£27,500	.. £30,000 ..	8

Increase of one-third per cent. for each £5,000 in excess up to a maximum of 15 per cent.

(*b*) Where the successor is not a stranger in blood and is not the husband, wife, or lineal issue, the above rate is increased by one-half, but not beyond a maximum of 15 per cent.

(*c*) Where the successor is a stranger in blood, the above rate is doubled, but not beyond a maximum of 20 per cent.

(*d*) Succession duties on shares or interest in companies—

Value. Exceeding—	Not exceeding—	Rate per cent.
..	£500 ..	2
£500	.. £1,000 ..	3
£1,000	.. £2,000 ..	4
£2,000	.. £3,000 ..	5
£3,000	.. £5,000 ..	6
£5,000	.. £7,500 ..	7
£7,500	..£10,000 ..	8
£10,000	..£15,000 ..	9

Increase of 1 per cent. for each £5,000 in excess up to 15 per cent.

(*e*) Probate Duty.—Where the value exceeds £300, the rate is £1 for every £100 or part thereof

South Australia.

(*a*) Property derived by the widow, widower, descendant, or ancestor.

Value of Estate or Settlement, etc.	Under	Rate per cent. Estates.	Settlements, &c.
£500	..£700 ..	1½	1½
£700	..£1,000	2	2
£1,000	..£2,000..	3	3
£2,000	..£3,000..	4	3½
£3,000	..£5,000..	4½	4
£5,000	..£7,000..	5	6
£7,000	..£10,000	6½	7
£10,000	..£15,000	7½	8
£15,000	..£30,000	9	9
£30,000	..£50,000	10	10
£50,000	..£75,000	11	11
£75,000	..£100,000	12	12
£100,000	..£150,000	13	14
£150,000	..£200,000	15	16
£200,000 and upwards	..	17½	17½

(*b*) Property derived by a brother or sister or descendant of a brother or sister, or by a person in any other degree of collateral consanguinity—

Value.	Under	Rate per cent. Estates.	Settlements, &c.
..	.. £200 ..	1	1
£200	.. £300 ..	1½	1½
£300	.. £400 ..	2	2½
£400	.. £700 ..	3	3½
£700	.. £1,000	4	4½
£1,000	.. £2,000	5	5
£2,000	.. £3,000	6½	6½
£3,000	.. £5,000	7½	8
£5,000	.. £10,000	9	9
£10,000	.. £15,000	10	11
£15,000	.. £25,000	12	12½
£25,000	.. £50,000	14	14
£50,000 and upwards	..	17½	17½

(*c*) Property, whether estates or settlements, derived by a stranger in blood—

Value.	Rate per cent.
Under £10,000 ..	10
£10,000 under £20,000 ..	15
£20,000 and upwards ..	20

Western Australia.

Value of Estate or Settlement. Exceeding—	Not exceeding—	Rate per cent.
..	.. £500 ..	1
£500	.. £1,000 ..	2
£1,000	.. £2,500 ..	3
£2,500	.. £4,500 ..	4
£4,500	.. £6,000 ..	5
£6,000	.. £7,000 ..	6
£7,000	.. £8,000 ..	6 2/5
£8,000	.. £9,000 ..	6 3/5
£9,000	.. £10,000..	6 4/5
£10,000	.. £11,000..	7 1/5
£11,000	.. £12,000..	7 2/5
£12,000	.. £13,000..	7 3/5
£13,000	.. £14,000..	7 4/5
£14,000	.. £15,000..	8 1/5
£15,000	.. £16,000..	8 2/5
£16,000	.. £17,000..	8 3/5
£17,000	.. £18,000..	8 4/5
£18,000	.. £19,000..	9
£19,000	.. £20,000 .	9 1/2
£20,000	.. ..	10

Tasmania.

(*a*) Property derived by the widow, widower, descendant, ancestor or illegitimate child:—

Value of Estate. Exceeding—	Not Exceeding—	Rate per cent.
£500	.. £1,000 ..	2
£1,000	.. £2,000 ..	2 1/2
£2,000	.. £3,000 ..	2 5/6
£3,000	.. £4,000 ..	3 1/6
£4,000	.. £5,000 ..	3 1/2
£5,000	.. £6,000 ..	3 3/4
£6,000	.. £8,000 ..	4
£8,000	.. £10,000..	4 1/4
£10,000	.. £12,000..	4 1/2
£12,000	.. £14,000..	4 3/4
£14,000	.. £16,000..	5
£16,000	.. £18,000..	5 1/5
£18,000	.. £20,000..	5 2/5
£20,000	.. £22,000..	5 3/5
£22,000	.. £24,000..	5 4/5
£24,000	.. £26,000..	6
£26,000	.. £28,000..	6 1/5
£28,000	.. £30,000..	6 2/5
£30,000	.. £32,000..	6 3/5
£32,000	.. £34,000..	6 4/5
£34,000	.. £36,000..	7

Increase of one-fifth per cent. for each £4,000 in excess up to £92,000 and upwards, 10 per cent.

(*b*) Property derived by a brother or sister or descendant of a brother or sister or any person in any other degree, not beyond the third degree of collateral consanguinity, double the above rates, but not exceeding 10 per cent.

(*c*) Property derived by a person beyond the third degree of consanguinity, or by a stranger in blood, 10 per cent.

SECTION XXI.

PRIVATE FINANCE.

§ 1. Currency.

1. **The Three Australian Mints.**—Soon after the discovery of gold in Australia steps were taken for the establishment of a branch of the Royal Mint in Sydney. The formal opening took place on the 14th May, 1855. The Melbourne branch of the Royal Mint was opened on the 12th June, 1872, and the Perth branch on the 20th June, 1899. The States of New South Wales, Victoria, and Western Australia provide an annual endowment, in return for which the mint receipts are paid into the respective State Treasuries, and it may be said that, apart from expenditure on buildings, new machinery, etc., the amounts paid into the Treasuries fairly balance the mint subsidies.

2. **Receipts and Issues in 1918.**—(i) *Assay of Deposits Received.* The number of deposits received during 1918 at the Sydney Mint was 393, of a gross weight of 1,214,008 ozs.; at the Melbourne Mint, there were 2,376, of a gross weight of 1,391,863.90* ozs.; and at the Perth Mint, 2,507, of a gross weight of 1,119,255 ozs. The average composition of these deposits in Sydney was, gold 907.5, silver 71.8, base 20.7 in every 1,000 parts; Melbourne, gold 886.2, silver 88.6, base 25.2 in every 1,000 parts; and Perth, gold 801.8, silver 144.6, base 53.6 in every 1,000 parts. As many parcels have, however, undergone some sort of refining process before being received at the mint, the average assay for gold shews higher in these figures than for gold as it naturally occurs.

(ii) *Issues.* The Australian mints, besides issuing gold coin in the shape of sovereigns and half-sovereigns, also issue gold bullion, partly for the use of local manufacturers (jewellers and dentists), and partly for export, India taking annually a considerable quantity of gold cast into 10-oz. bars. Owing, however, to the prohibition by the Commonwealth Government of the export of gold, the issue of bars for India ceased in July, 1916. The issues during 1918 are shewn in the table below :—

ISSUES OF GOLD FROM AUSTRALIAN MINTS DURING 1918.(a)

Mint.	Coin.			Bullion.	Total.
	Sovereigns.	Half-sovereigns.	Total.		
	£	£	£	£	£
Sydney ..	3,716,000	..	3,716,000	91,734	3,807,734
Melbourne ..	4,969,493	..	4,969,493	630,074	5,599,567
Perth ..	3,812,884	..	3,812,884	7,327	3,820,211
Total ..	12,498,377	..	12,498,377	729,135	13,227,512

(a) For later information see Appendix.

In addition to the issue of gold, the Sydney and Perth mints distribute silver and bronze Australian coins struck elsewhere.

* In addition 100,806.61 ozs. were re-deposited for coinage.

(iii) *Withdrawals of Worn Coin.* The mints receive light and worn coin for recoinage, gold being coined locally, while silver is forwarded to London. The value of gold coin so received in 1918 was £1,148, viz.:—Sydney, Nil; Melbourne, £181; and Perth, £967. The value of worn silver coins received during 1918 was £89,371, viz.:—Sydney, £71,100; Melbourne, £15,950; and Perth, £2,321.

3. **Total Receipts and Issues.**—(i) *Receipts.* The total quantities of gold received at the three mints since their establishment are stated in the gross as follows:—Sydney, 39,435,631.49 ozs.; Melbourne, 38,702,790.21 ozs.; and Perth, 25,719,134.09 ozs. As the mints pay for standard gold (22 carats) at the rate of £3 17s. 10½d. per oz., which corresponds to a value of £4 4s. $11\frac{5}{11}$d. per oz. fine (24 carats), it is possible to arrive at the number of fine ounces received from the amounts paid for the gold received. These amounts were:—Sydney, £146,085,671; Melbourne, £152,247,096; Perth, £90,482,583; corresponding to—Sydney, 34,391,490 ozs. fine; Melbourne, 35,842,013 ozs. fine; and Perth, 21,301,410 ozs. fine. In the case of deposits containing over a certain minimum of silver, the excess is paid for at a rate fixed from time to time by the Deputy Master of the branch Mint concerned.

(ii) *Issues.* The total values of gold coin and bullion issued by the three mints are shown in the table hereafter. It may be said that rather more than one-half of the total gold production of Australasia has passed through the three Australian mints, the production of the Commonwealth States to the end of 1918 being valued at £594,536,723, and that of New Zealand at £87,933,204, or a total of £682,469,927.

TOTAL ISSUES OF GOLD FROM AUSTRALIAN MINTS TO END OF 1918.

Mint.	Coin.			Bullion.	Total.
	Sovereigns.	Half-sovereigns.	Total.		
	£	£	£	£	£
Sydney ..	133,350,500	4,781,000	138,131,500	6,846,252	144,977,752
Melbourne ..	139,782,993	946,780	140,729,773	11,502,699	152,232,472
Perth ..	82,201,986	257,344	82,459,330	7,991,958	90,451,288
Total ..	355,335,479	5,985,124	361,320,603	26,340,909	387,661,512

The total issues of Imperial silver coins from the opening of the Mints to the end of 1918 were £2,415,200, viz.:—Crowns, £3,500; double florins, £4,585; half-crowns, £722,600; florins, £528,215; shillings, £606,200; sixpences, £253,220; and threepences, £296,880.

Imperial bronze coins to the value of £180,150 have also been issued to the end of 1918, viz.:—Pence, £126,640; half-pence, £53,310; and farthings, £200.

(iii) *Withdrawals of Worn Coin.* Complete figures as to the withdrawal of gold coin are as follows:—Sydney, £1,084,381; Melbourne, £751,781 (since and including 1890); and Perth, £1,403.

Withdrawals of worn silver coin amounted to £663,873 in Sydney, to £570,212 in Melbourne, and to £54,812 in Perth.

4. ***Standard Weight and Fineness of Coinage.***—The coinage of the Commonwealth is the same as that of the United Kingdom, and the same provisions as to legal tender hold good, viz., while gold coins are legal tender to any amount, silver coins are only so for an amount not exceeding forty shillings, and bronze coins up to one shilling. As will be seen from the table below, the standard weights of the sovereign and half-sovereign are respectively 123.27447 grains and 61.63723 grains, but these coins will pass current if they do not fall below 122.5 grains and 61.125 grains respectively.

STANDARD WEIGHT AND FINENESS OF COMMONWEALTH COINAGE.

Denomination.	Standard Weight.	Standard Fineness.
	Grains.	
GOLD—		Eleven-twelfths fine gold, viz. :—
Sovereign ..	123.27447	Gold .. 0.91667 } 1.00000
Half-sovereign ..	61.63723	Alloy .. 0.08333 }
SILVER—		
Crown	436.36363	
Double florin ..	349.09090	
Half-crown ..	218.18181	Thirty-seven-fortieths fine silver, viz. :—
Florin ..	174.54545	Silver .. 0.925 } 1.000
Shilling ..	87.27272	Alloy .. 0.075 }
Sixpence ..	43.63636	
Threepence ..	21.81818	
BRONZE—		Mixed metal, viz. :—
Penny	145.83333	Copper.. 0.95 }
Halfpenny ..	87.50000	Tin .. 0.04 } 1.00
Farthing ..	43.75000	Zinc .. 0.01 }

5. ***Prices of Silver and Australian Coinage.***—(i) *Prices of Silver.* The value of silver has greatly decreased since its demonetisation and restricted coinage in almost the whole of Europe. A noticeable increase has, however, taken place since 1915, the price of silver following the general trend of world prices. Its average price in the London market in recent years is shewn in the table on page 350.

(ii) *Profits on Coinage of Silver.* As sixty-six shillings are coined out of one pound troy of standard silver, the silver required to produce £3 6s. of coin was only worth on the average about £2 17s. during 1919; the difference of 9s. represents, therefore, the gross profit or seignorage made on the coinage of every £3 6s. Negotiations took place for a number of years between the Imperial authorities and the Governments of New South Wales and Victoria, which in 1898 resulted in permission being granted to the two Governments named to coin silver and bronze coin at the Sydney and Melbourne Mints for circulation in Australia. No immediate steps were, however, taken in the matter, and as section 51 of the Commonwealth Constitution makes legislation concerning "currency, coinage, and legal tender" a federal matter, the question remained in abeyance until the latter part of 1908, when the Commonwealth Treasurer announced his intention of initiating the coinage of silver in the future.

(iii) *Coinage Bill.* In 1909 a Coinage Bill was introduced in the Commonwealth Parliament, which provided that the future Australian coinage should consist of the following coins :—In gold, £5, £2, £1, and 10s. ; in silver, 2s., 1s., 6d., and 3d. ; and in bronze, 1d. and ½d. Gold was to be legal tender up to any amount, silver up to 40s., and bronze up to 1s. Ultimately the coinage was to be undertaken in Australia, but for the time an agreement was made with the authorities of the Royal Mint in London, under the terms of which the coinage was to be done in London on account of the Commonwealth Government. Orders were given for the immediate coinage of £200,000 worth of silver, viz., one million florins, one million shillings, one million sixpences, and

two million threepences. The coins were to bear on the obverse H.M. the King's head, with the Latin inscription which appears on the British coins, and on the reverse the Australian coat-of-arms, with the denomination and the date. The Imperial authorities undertook to withdraw £100,000 worth of the existing silver-coinage per annum at its face value. The first consignment of the new coinage arrived in Australia early in 1910, and in a short time all the silver coins contracted for were supplied to the Royal Mints, Australia. Copper coins of the value of £10,000, viz., 1,560,000 pennies and 1,680,000 halfpennies, of a design similar to that of the silver coins, were ordered. It was not, however, intended to withdraw any of the existing copper coins, but merely to make good the "leakage," which was considerable.

The issue in 1918 was £461,275 silver, and £14,430 bronze, according to a statement issued by the Commonwealth Treasury. The total issue since 1910 amounted to £3,408,350 silver, and £135,170 bronze.

§ 2. Banking.

1. **Banking Facilities.**—*Head Offices of Banks.* Of the twenty-one banks trading in the Commonwealth on 30th June, 1920, four have their head offices in London, viz., the Bank of Australasia; the Union Bank of Australia Limited; the English, Scottish and Australian Bank Limited; and the London Bank of Australia Limited. The head offices of the following four banks are in Sydney—The Commonwealth Bank of Australia, The Bank of New South Wales, the Commercial Banking Company of Sydney Limited, and the Australian Joint Stock Bank Limited (now the Australian Bank of Commerce Limited). Four banks have their head offices in Melbourne, viz., the National Bank of Australasia Limited, the Commercial Bank of Australia Limited, the Bank of Victoria Limited, and the Royal Bank of Australia Limited. Brisbane is the headquarters of two banks, viz., the Queensland National Bank Limited, and the Bank of Queensland Limited. Only one bank has at present its head office in Adelaide, viz., the Bank of Adelaide; one in Perth, viz., the Western Australian Bank; and one in Hobart, the Commercial Bank of Tasmania Limited. The Bank of New Zealand has its headquarters in Wellington. Of the three remaining banks, the Comptoir National d'Escompte de Paris has its head office in Paris, the Ballarat Banking Company in Ballarat, and the Yokohama Specie Bank in Yokohama, Japan. It is proposed, in the few instances where the banks are referred to by name, to arrange them in the order just given, with the exception of the Commonwealth Bank, which is placed first.

It is worthy of note that the bank amalgamations, which have been such a feature in British banking of late years, have appeared in Australia, and materially reduced the number of competitive joint stock banks. During the calendar years 1917 and 1918 the following were recorded:—(*a*) the Royal Bank of Queensland Limited with Bank of North Queensland Limited; (*b*) City Bank of Sydney with Australian Bank of Commerce Limited; (*c*) National Bank of Tasmania Limited with Commercial Bank of Australia Limited; and (*d*) National Bank of Australia Limited with Colonial Bank of Australasia Limited. This accounts for the reduction in number of independent joint stock banks operating in Australia.

A further amalgamation was announced in August, 1920, viz., the London Bank of Australia Ltd. and the English, Scottish and Australian Bank Ltd. These will, however, appear as separate banks in the present returns. The amalgamated banks further strengthened their position by absorbing the Commercial Bank of Tasmania, which from May, 1921, ceases to exist independently.

2. **Banking Legislation.**—Under Section 51 of the Commonwealth Constitution Act the Commonwealth Parliament has power to legislate with respect to "Banking, other than State banking, also State banking extending beyond the limits of the State concerned, the incorporation of banks, and the issue of paper money." For a few years the only Commonwealth banking legislation passed was Act No. 27 of 1909, "An Act relating to Bills of Exchange, Cheques, and Promissory Notes," which came into force on the 1st February, 1910. In the session of 1910, however, two Acts relating to banking were passed by the Federal Parliament. The first was the Australian Notes Act No. 11 of 1910, assented to on the 16th September, 1910, and proclaimed 1st November, 1910; and the second the Bank Notes Tax Act No. 14, 1910, assented to on 10th October, 1910, and proclaimed 1st July, 1911. These Acts have been fully discussed in recent issues of the Official Year Book. The former Act was superseded in December, 1920, when the control of the Australian Note Issue was handed over by the Commonwealth Treasury to the Commonwealth Bank. The Note Issue Department of the Bank, so created, is administered by a Board including the Governor and Secretary of the Commonwealth Bank, a leading Treasury official, and two outside financial experts.

The Act under which the transfer was effected requires not less than one-fourth of the amount of notes outstanding to be held in gold coin and bullion, and the remainder or any part thereof—

(a) On deposit with any other Bank;

(b) In securities of the United Kingdom, or of the Commonwealth, or of a State;

(c) In Trade Bills with a currency of not more than 120 days.

On 31st December, 1920, immediately after the transfer, the Note Issue amounted to £58,713,251, of which £26,965,795 was in the hands of the public, and £31,747,456 in the banks. The assets included £23,714,983 in gold coin and bullion.

The Notes Act and the Bank Notes Act were supplemented in the following year by the passing of No. 18 of 1911, "An Act to provide for a Commonwealth Bank," which passed both Houses and was assented to on 22nd December, 1911. The early steps in the foundation of the Bank have been described in previous issues from No. 6 to No. 10 inclusive, and will not be repeated here.

As the initial expenses of the bank were heavy, and as no capital was advanced, the early operations resulted in a small loss. This was debited to the profit and loss account of the bank, and the increasing prosperity of the institution was shewn by the way in which the original debit was reduced, until on 30th June, 1915, it was entirely extinguished. The following table shews the results of the transactions of the bank for the last five financial years:—

COMMONWEALTH BANK.—NET RESULT OF TRANSACTIONS, 1916 TO 1920.

Net Result at 30th June—	General Bank.	Savings Bank.	Entire Bank.
	£	£	£
1916	Cr. 181,445	Dr. 34,376	Cr. 147,069
1917	Cr. 522,467	Cr. 3,825	Cr. 526,292
1918	Cr. 991,934	Cr. 84,092	Cr. 1,076,026
1919	Cr. 1,726,532	Cr. 196,438	Cr. 1,922,970
1920	Cr. 2,426,067	Cr. 330,038	Cr. 2,756,105

It will be seen from the above that the general bank became profitable at a much earlier stage than the savings bank. According to the provisions of section 30 of the Bank Act, the net profit of £2,756,105 disclosed at 30th June, 1920, was divided equally between a bank reserve fund and a redemption fund. The reserve fund is available for the payment of any liabilities of the bank. The redemption fund is available for the repayment of any money advanced to the bank by the Treasurer, or for the redemption

of debentures or stock which may be issued by the bank; and any excess may be used for the purpose of the redemption of any Commonwealth debts, or State debts taken over by the Commonwealth.

The Acts under which the various banks are incorporated are not all of the same nature, but it may be stated that while most of the older banks were incorporated by special Acts, *e.g.*, the Bank of New South Wales, by Act of Council 1817; the Bank of Australasia, by Royal Charter; the Bank of Adelaide, by Act of the South Australian Parliament; and the Bank of New Zealand, by Act of the General Assembly of New Zealand, the newer banks are generally registered under a "Companies Act," or some equivalent Act. This is also the case with those banks which, after the crisis of 1893, were reconstructed.

3. **Capital Resources of Banks.**—The paid-up capital of the cheque-paying banks, together with their reserve funds, the rate per cent., and the amount of their last dividends, are shewn in the table hereunder. The information relates to the balance-sheet last preceding the 30th June, 1920. In regard to the reserve funds it must be stated that in the case of some of the banks these are invested in Government securities, while in other cases they are used in the ordinary business of the banks, and in a few instances they are partly invested and partly used in business.

CAPITAL RESOURCES OF CHEQUE-PAYING BANKS, 1919-20.

Bank.	Paid-up Capital.	Rate per cent. per annum of last Dividend and Bonus.	Amount of last Half-yearly Dividend and Bonus.	Amount of Reserved Profits.
	£	%	£	£
Commonwealth Bank of Australia ..	..	..	..	2,756,105
Bank of Australasia	2,500,000	14 and Bonus 4	190,000	3,975,000
Union Bank of Australia Ltd.	2,500,000	14	175,000	2,070,000
English, Scottish and Australian Bank Ltd.	539,438	10	53,944*d*	585,000
London Bank of Australia Ltd.	794,785*a*	9	65,916	450,000
Bank of New South Wales	4,856,800	10	119,143*e*	3,275,000
Commercial Banking Coy. of Sydney Ltd.	2,500,000	10	120,748	2,120,000
Australian Bank of Commerce Ltd. ..	1,200,000	5	29,967	160,000
National Bank of Australasia Ltd. ..	2,000,000	8	80,000	1,200,000
Commercial Bank of Australia Ltd. ..	2,213,009*b*	4	42,347	..
Bank of Victoria Ltd.	1,478,010*c*	7	51,730	475,000
Royal Bank of Australia Ltd.	500,000	10	25,000	250,000
Queensland National Bank Ltd.	796,656	10	19,801*e*	300,000
Bank of Queensland Ltd.	450,000	6	13,500	25,000
Bank of Adelaide	560,786	10	25,000	600,000
Western Australian Bank	250,000	20	25,000	700,000
Commercial Bank of Tasmania Ltd. ..	300,000	10	15,000	200,000
Bank of New Zealand	2,627,441	13½ and Bonus 4 Ordinary and B Preferential; 10 A Preferential. 4 Guaranteed	268,750*d*	2,500,000
Comptoir National d'Escompte de Paris ..	8,000,000	8	640,000*d*	1,803,950
Ballarat Banking Coy. Ltd.	85,000	10	4,250	93,000
Yokohama Specie Bank	6,100,000	12	321,000	1,600,000
Total	40,251,925	..	..	25,238,055

(*a*) Including calls in arrear. (*b*) Subject to estimated deficiency in connection with Special Assets Trusts Coy. Ltd. (*c*) £416,760 preferential, £1,061,250 ordinary. (*d*) For twelve months. (*e*) Dividend for quarter.

4. **Liabilities and Assets of Banks.**—(i) *Liabilities of Banks for Quarter ended 30th June, 1920.* As already stated, the banks transacting business in any State are obliged, under the existing State laws, to furnish a quarterly statement of their assets and liabilities, which contains the averages of the weekly statements prepared by the bank

for that purpose, and they have, during the years 1908–20, furnished quarterly statements to the Commonwealth Statistician. As all other financial returns in this work embrace, so far as possible, a period ended 30th June, 1920, it seems advisable to give the banking figures for the quarter ended on that date, and, where they are shewn for a series of years, similarly to use the figures for the June quarter of each year. The liabilities are *those to the general public, and are exclusive of the banks' liabilities to their shareholders*, which are shewn in the preceding table :—

AVERAGE LIABILITIES OF BANKS IN EACH STATE OF THE COMMONWEALTH AND THE NORTHERN TERRITORY FOR THE QUARTER ENDED 30th JUNE, 1920.

State.	Notes in Circulation not Bearing Interest.	Bills in Circulation not Bearing Interest.	Balances Due to Other Banks.	Deposits.			Total Liabilities.
				Not Bearing Interest.	Bearing Interest. (*b*)	Total.	
	£	£	£	£	£	£	£
New South Wales	77,448	956,404	1,601,687	53,447,036	49,926,226	103,373,262	106,008,801
Victoria ..	93,007	213,635	1,185,037	42,122,909	44,799,654	86,922,563	88,514,242
Queensland ..	(*a*)	905,954	576,505	16,218,710	16,168,592	32,387,302	33,869,761
South Australia	24,562	41,326	699,332	10,959,778	11,461,869	22,421,647	23,186,867
Western Australia	26,498	103,473	339,738	7,202,759	5,299,717	12,502,476	12,972,185
Tasmania ..	2,615	22,886	78,329	3,834,861	3,866,362	7,701,223	7,805,053
Northern Territory	..	35	24,489	126,747	193,372	320,119	344,643
Total ..	224,130	2,343,713	4,505,117	133,912,800	131,715,792	265,628,592	272,701,552

(*a*) In Queensland, Treasury Notes were used instead of bank notes.
(*b*) *Including £17,008,259 Commonwealth Savings Bank Deposits.*

(ii) *Assets of Banks for Quarter ended 30th June, 1920.* The average assets of the banks are shewn in the following table :—

AVERAGE ASSETS OF BANKS IN EACH STATE OF THE COMMONWEALTH AND THE NORTHERN TERRITORY FOR THE QUARTER ENDED 30th JUNE, 1920.

State.	Coined Gold and Silver and other Metals.	Gold and Silver in Bullion or Bars.	Government and Municipal Securities.	Landed and House Property.	Notes and Bills of other Banks.	Balances Due from other Banks.	Discounts, Overdrafts, and all other Assets.	Australian Notes.	Total Assets.
	£	£	£	£	£	£	£	£	£
N.S.W. ..	9,686,529	340,734	20,879,358	2,477,599	861,363	3,810,868	68,171,203	13,044,783	119,272,437
Victoria ..	5,046,617	67,640	11,687,734	1,449,171	1,027,546	1,450,090	45,642,462	11,080,216	77,451,476
Q'land ..	2,262,104	21,074	1,554,924	770,191	496,437	801,280	21,485,247	4,154,440	31,547,697
S. Aust. ..	1,814,100	3,121	444,865	296,647	261,667	675,453	10,676,319	3,153,421	17,325,593
W. Aust.	1,210,853	191,620	755,981	221,941	162,349	652,834	10,744,799	2,265,309	16,205,578
Tasmania	679,755	25	1,813,279	158,530	52,635	346,658	3,957,318	900,131	7,908,331
Nor. Ter.	4,320	1,572	..	1,200	45,034	82,471	16,193	12,373	163,163
Total	20,704,078	625,786	37,136,141	5,375,279	2,909,031	7,819,654	160,693,541	34,610,763	269,874,273

(iii) *Liabilities of Banks for June Quarters, 1916 to 1920.* In the subjoined table, which shews the average liabilities of the banks for the quarters ended 30th June, 1916 to 1920, for the Commonwealth as a whole, it will be seen that the growth in total liabilities is almost entirely due to an increase in the deposits, and that deposits not bearing interest and deposits bearing interest have both shared in that increase :—

AVERAGE LIABILITIES OF BANKS IN THE COMMONWEALTH FOR THE QUARTER ENDED 30th JUNE, IN THE YEARS 1916 TO 1920.

Year.	Notes in Circulation not Bearing Interest.	Bills in Circulation not Bearing Interest.	Balances Due to Other Banks.	Deposits. Not Bearing Interest.	Deposits. Bearing Interest. (a)	Deposits. Total.	Total Liabilities.
	£	£	£	£	£	£	£
1916	257,621	1,263,622	4,389,228	92,821,872	100,118,758	192,940,630	198,851,101
1917	244,806	1,439,019	3,660,853	105,390,961	103,739,427	209,130,388	214,475,066
1918	229,639	1,726,045	4,486,497	112,262,321	112,504,432	224,766,753	231,208,934
1919	221,755	1,813,390	6,540,609	118,988,567	130,069,687	249,058,254	257,634,008
1920	224,130	2,348,713	4,505,117	133,912,800	131,715,792	265,628,592	272,701,552

(a) Including Commonwealth Savings Bank Deposits.

(iv) *Assets of Banks for June Quarters, 1916 to 1920.* A similar table shewing the average assets of the banks for the June quarters of each of the years 1916 to 1920 is shewn below.

AVERAGE ASSETS OF BANKS IN THE COMMONWEALTH FOR THE QUARTER ENDED 30th JUNE, IN THE YEARS 1916 TO 1920.

Year.	Coined Gold and Silver and other Metals.	Gold and Silver in Bullion or Bars.	Landed and other Property.	Notes and Bills of other Banks.	Balances Due from other Banks.	All other Debts Due to the Banks.(a)	Total Assets.
	£	£	£	£	£	£	£
1916 ..	26,957,576	843,214	5,237,167	1,756,796	5,526,231	179,232,575	219,553,559
1917 ..	21,685,410	1,156,033	5,288,199	2,035,297	5,429,884	176,739,172	212,333,995
1918 ..	21,518,264	889,032	5,300,834	2,149,799	6,067,990	200,386,561	236,332,480
1919 ..	21,341,026	793,883	5,215,550	2,274,422	7,798,735	240,527,120	277,950,736
1920 ..	20,704,078	625,786	5,375,279	2,909,031	7,819,654	232,440,445	269,874,273

(a) Including Government and Municipal securities, and Australian notes.

As the table shews, the increase in the total amount of assets is mainly due to advances. The decline in 1917 was due to a fall in the advances, which was not quite balanced by the rise in Government securities. The great increases of 1918 and 1919 are almost exactly accounted for by the increase in the advances, due largely to the action of the banks in financing wheat and other commodities awaiting shipment ; also in assisting individuals to invest in war loan. In 1920 the liabilities exceeded the assets by about three millions. This was owing to the excess of exports over imports, and the fact that payments had been made by the British Government for wheat and wool in anticipation of shipments not then effected.

5. Percentage of Coin, Bullion, and Australian Notes to Liabilities at Call.—(i) *Commonwealth.* Although it is not strictly correct to assume that the division of deposits into those bearing interest and not bearing interest would in every case coincide with a division into fixed deposits and current accounts, the division, in default of a better one, must be adopted, and in the following table "liabilities at call" are therefore understood to include the note circulation of the banks and the deposits not bearing interest. From 1912 onwards, however, the former item steadily decreased, and is now almost negligible as compared with the latter.

PERCENTAGE OF COIN, BULLION, AND AUSTRALIAN NOTES TO LIABILITIES AT CALL, COMMONWEALTH BANKS, 1916 TO 1920.

Year.	Liabilities at Call.	Coin, Bullion, and Australian Notes.	Percentage to Liabilities at Call.
	£	£	%
1916	93,079,493	58,312,009	62.65
1917	105,635,767	53,777,126	50.91
1918	112,491,960	56,359,868	50.10
1919	119,210,322	57,894,016	48.56
1920	134,136,930	55,940,627	41.70

It would appear from the figures just given that the banks generally consider it advisable to hold about half the amount of liabilities at call in coin, bullion, and notes. There was a decline from this standard in 1920 owing to a substantial rise in the deposits not bearing interest.

(ii) *Queensland Treasury Notes.* No bank notes are issued by any of the banks in Queensland, where a Treasury note took the place of bank notes from 1893. These Treasury notes are disregarded in the quarterly statements of the banks; according to Treasury returns the amount outstanding on 30th June, 1919, was £25,600. Under the Australian Notes Act, previously referred to, the issue of notes by a State is now prohibited.

(iii) *States.* The proportion of coin, bullion, and Australian notes to liabilities at call varies considerably in the different States, and even sometimes in the same State from year to year. A table is appended shewing the percentage for each State for the quarter ended 30th June in each of the years 1916 to 1920:—

PERCENTAGE OF COIN, BULLION, AND AUSTRALIAN NOTES TO LIABILITIES AT CALL, COMMONWEALTH BANKS, 1916 TO 1920.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
	%	%	%	%	%	%	%	%
1916 ..	56.02	62.94	56.78	72.93	127.61	72.55	13.40	62.65
1917 ..	49.34	49.51	46.71	54.11	80.41	62.89	11.50	50.91
1918 ..	48.06	48.95	51.55	54.81	57.06	61.30	12.66	50.10
1919 ..	50.52	45.67	48.35	43.32	60.21	55.92	11.05	48.56
1920 ..	43.07	38.36	39.69	45.25	50.75	41.17	14.41	41.70

6. **Deposits and Advances.**—(i) *Total Deposits.* The total amount of deposits held by the banks shews a steady advance during the period under review.

TOTAL DEPOSITS IN COMMONWEALTH BANKS, 1916 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	All States.
	£	£	£	£	£	£	£	£
1916 ..	80,046,047	59,280,709	25,848,722	13,631,827	8,070,380	6,042,451	220,494	192,940,680
1917 ..	84,049,286	65,941,651	29,215,467	15,812,959	8,519,496	5,966,908	224,689	209,130,388
1918 ..	86,489,590	68,663,889	34,123,083	18,594,291	9,770,507	6,750,979	304,314	224,766,753
1919 ..	93,866,093	73,337,458	35,477,051	23,650,545	10,663,143	6,720,381	344,583	249,058,254
1920 ..	103,378,262	86,022,868	32,387,808	22,421,647	12,502,476	7,701,223	320,119	265,628,592

(ii) *Deposits per Head of Population.* To shew the extent to which the population makes use of the banking facilities afforded to it, a table is given hereunder shewing the

amount of total deposits per head of mean population for each of the years 1916 to 1920. The figures must not be taken as representative of the savings of the people, as a large proportion of the deposits is non-interest-bearing and therefore presumably used in the business of the banks' customers, together with a small part of the interest-bearing deposits.

DEPOSITS PER HEAD OF POPULATION IN COMMONWEALTH BANKS, 1916 TO 1920.

Year.	N.S.W.			Victoria.			Q'land.			S. Aust.			W. Aust.			Tasmania.			N. Ter.			All States.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1916 ..	42	19	0	42	0	6	37	9	1	31	6	3	25	11	8	30	0	7	45	10	9	30	5	5
1917 ..	44	19	9	40	9	9	43	2	2	36	14	7	27	12	9	30	2	5	64	12	10	42	15	1
1918 ..	45	7	2	48	10	5	40	13	3	42	6	11	31	0	8	33	4	0	71	4	6	45	5	1
1919 ..	48	0	4	53	13	9	50	4	2	52	6	6	33	5	8	31	19	9	71	19	1	48	14	9
1920 ..	50	19	1	57	15	6	44	2	0	47	8	10	37	8	7	35	7	8	73	0	9	50	2	8

(iii) *Total Advances.* In the quarterly statements furnished by the banks the column headed "all other debts due to the banks," is made up of such miscellaneous items as bills discounted, promissory notes discounted, overdrafts on personal security, overdrafts secured by deposit of deeds or by mortgage, etc. The quarterly returns furnished to the Commonwealth Statistician in 1908 and 1909 provided for a division of the amounts contained under this heading into a number of sub-headings, but all the banks were not in a position to make the necessary division, so that under present circumstances it is impossible to separate these items, and the total amounts contained in the column must, therefore, be treated as advances. The following table shews the totals for each State during the years 1916 to 1920. The fall in 1917 was due to the fact that the banks were not called upon to finance the harvest, this being undertaken by the Imperial Government. Part of the very large rise in 1917-19 is due to the advances made by the banks to their clients, to enable them to subscribe to the Commonwealth War Loans.

ADVANCES BY COMMONWEALTH BANKS, 1916 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	All States.
	£	£	£	£	£	£	£	£
1916 ..	50,448,748	41,990,188	18,456,103	10,156,148	9,414,042	2,871,661	4,141	133,336,081
1917 ..	48,592,808	36,929,442	17,753,800	8,459,562	9,057,389	2,988,916	5,935	123,787,852
1918 ..	56,176,269	42,185,873	18,685,598	10,877,107	9,183,968	3,265,637	36,006	140,410,468
1919 ..	70,991,172	53,645,558	21,773,778	17,280,249	10,562,174	3,785,862	14,532	177,952,825
1920 ..	68,171,203	45,642,462	21,485,247	10,676,319	10,744,799	3,957,318	16,193	160,693,541

(iv) *Proportion of Advances to Deposits.* The percentage borne by advances to total deposits shews to what extent the needs of one State have to be supplied by the resources of another State, and where the percentage for the Commonwealth as a whole exceeds 100 (as it did in the early years of the century), the banks must have supplied the deficiency from their own resources, or from deposits obtained outside the Commonwealth. The following figures shew, however, that the banking business of the Commonwealth has been self-contained during the period under review :—

PERCENTAGE OF ADVANCES TO TOTAL DEPOSITS, COMMONWEALTH BANKS, 1916 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	All States.
	%	%	%	%	%	%	%	%
1916 ..	63.02	70.83	71.96	74.50	116.65	47.52	1.68	69.11
1917 ..	57.81	56.60	60.77	53.50	106.31	50.09	1.83	59.19
1918 ..	64.95	61.44	54.74	58.50	94.00	48.37	9.88	62.47
1919 ..	75.52	68.48	61.48	73.06	99.05	56.38	4.22	71.45
1920 ..	65.95	52.40	66.24	47.61	85.94	51.39	5.06	60.50

7. **Clearing Houses.**—The Sydney Banks' Exchange Settlement and the Melbourne Clearing House, at which two institutions settlements are effected daily between the banks doing business in New South Wales and Victoria respectively, publish figures of the weekly clearances effected. From these figures it appears that in 1920 the total clearances in Sydney amounted to £764,546,000, and in Melbourne to £725,006,000. These figures represent an increase for Sydney of £174,448,000 on those for 1919, and for Melbourne of £180,795,000. Owing to the different distribution of the banking business in the two cities these figures do not, however, afford a fair comparison of the volume of banking business transacted in Sydney and Melbourne. For Adelaide the clearances in 1920 totalled £166,011,000, an increase for the year of £42,131,000. Returns for all Australian Clearing Houses for the last five years are shewn in the following table:—

YEARLY TOTAL OF BILLS, CHEQUES, ETC., PASSED THROUGH AUSTRALIAN CLEARING HOUSES, 1916 TO 1920.

Year.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.
	£	£	£	£	£
1916	422,371,000	357,788,000	100,064,000	71,433,000	40,366,000
1917	444,532,000	377,300,000	119,501,000	83,866,000	41,370,000
1918	552,216,000	493,768,000	134,050,000	105,705,000	50,518,000
1919	590,098,000	544,211,000	128,006,000	123,880,000	56,900,000
1920	764,546,000	725,006,000	160,539,000	166,011,000	80,758,000

§ 3. Companies.

1. **General.**—Returns in regard to registered companies are defective, and, with few exceptions, are not available for Tasmania. They embrace (*a*) Returns relating to Trustees, Executors and Agency Companies; (*b*) Returns relating to Registered Building and Investment Societies; and (*c*) Returns relating to Registered Co-operative Societies.

2. **Trustees, Executors and Agency Companies.**—Returns are available of eight Victorian, two New South Wales, one Queensland, four South Australian, one Western Australian, two Tasmanian companies, and two with head offices in New Zealand. The paid-up capital of these twenty companies amounted to £752,565; reserve funds and undivided profits to £530,632; other liabilities, £254,591; total liabilities, £1,537,798. Among the assets are included:—Deposits with Governments, £192,504; other investments in public securities, fixed deposits, etc., £410,363; loans on mortgage, £130,639; property owned, £498,717; other assets, £305,575. The net profits for the year were £127,765, and the amount of dividends and bonuses £74,960. Returns as to the amount at credit of estates represented by assets are available for only eleven companies, the total shewn being £59,204,063.

Probably about £25,000,000 would have to be added to this amount for the remaining nine companies, so that the total amount would probably be about £85,000,000. None of these companies receives deposits, and advances are only made under exceptional circumstances, and to a very limited extent, the total so shewn in the last balance-sheets being but £118,063.

3. **Registered Building and Investment Societies.**—Returns have been received of a total of 204 societies, viz., 126 in New South Wales, 31 in Victoria, 11 in Queensland, 20 in South Australia, 12 in Western Australia, and 4 in Tasmania. The balance-sheets

cover various periods ended during the second half of 1919 and the first half of 1920, so that the returns may be assumed to correspond roughly to the financial year 1919-20. The liabilities of the societies are stated as follows :—

LIABILITIES OF REGISTERED BUILDING AND INVESTMENT SOCIETIES, 1919-20.

State.	Paid-up Capital or Subscriptions.	Reserve Funds.	Deposits.	Bank Overdrafts and other Liabilities.	Total Liabilities.
	£	£	£	£	£
New South Wales ..	1,742,723	370,832	485,764	110,873	2,710,192
Victoria	1,334,075	387,867	848,787	124,044	2,694,773
Queensland.. ..	493,901	45,664	94,622	41,316	675,503
South Australia ..	290,025	21,951	4,899	336,346	653,221
Western Australia ..	153,408	1,008	26,342	10,361	191,119
Tasmania	116,321	61,943	166,929	4,366	349,559
Total ..	4,130,453	889,265	1,627,343	627,306	7,274,367

The assets of the companies for the same period were as follows :—

ASSETS OF REGISTERED BUILDING AND INVESTMENT SOCIETIES, 1919-20.

State.	Advances on Mortgage.	Landed and House Property, Furniture, etc.	Cash in Hand and on Deposit and other Assets.	Total Assets.
	£	£	£	£
New South Wales	2,360,473	(a)	349,719	2,710,192
Victoria	2,264,083	380,391	128,708	2,773,182
Queensland	625,432	13,490	39,397	678,319
South Australia	627,139	15,218	20,271	662,628
Western Australia	185,214	147	5,758	191,119
Tasmania	295,558	10,390	43,611	349,559
Total	6,357,899	419,636	587,464	7,364,999

(a) Included with other assets.

Statistical information, so far as is available, is furnished in the following table :—

REGISTERED BUILDING AND INVESTMENT SOCIETIES, 1919-20.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
Number of societies ..	126	31	11	20	12	4	204
Number of shareholders ..	(a)	7,400	4,591	9,294	3,347	1,795	(b) 26,427
Number of shares ..	(a)	(a)	862,928	26,909	11,884	15,313	(c) 917,034
Number of borrowers ..	(a)	9,402	4,296	2,249	1,476	1,311	(b) 18,734
Income for year from interest £	136,430	176,842	44,596	34,413	(d)	22,188	414,469
Working expenses for year £	104,172	73,458	7,913	7,661	5,961	6,764	205,929
Amount of deposits during year .. .. £	237,515	628,732	55,876	8,319	51,906	50,021	1,030,369
Repayment of loans during year .. .. £	299,466	649,299	177,325	140,213	57,434	88,420	1,412,157
Loans granted during year £	377,410	739,772	161,408	166,764	62,604	96,270	1,604,228

(a) Not available. (b) Exclusive of New South Wales. (c) Exclusive of New South Wales and Victoria. (d) Included in repayment of loans.

4. Registered Co-operative Societies.—Returns are available of 148 societies, of which 50 are in New South Wales, 70 in Victoria, 4 in Queensland, 5 in South Australia, and 19 in Western Australia. As in the case of Building and Investment Societies, the balance-sheets of Co-operative Societies cover various periods ended during the financial year 1919–20. The liabilities of the 148 societies are shewn in the following table :—

LIABILITIES OF REGISTERED CO-OPERATIVE SOCIETIES, 1919–20.

State.	Paid-up Capital.	Reserve Funds.	Bank Overdrafts and Sundry Creditors.	Other Liabilities, Profit and Loss Account, etc.	Total Liabilities.
	£	£	£	£	£
New South Wales ..	349,309	223,160	(a)	216,014	788,483
Victoria	173,088	61,310	302,877	72,382	609,657
Queensland	517	..	6,466	22,403	29,386
South Australia ..	263,971	33,013	15,355	48,789	361,128
Western Australia ..	20,721	3,371	25,641	107,811	157,544
Total ..	807,606	320,854	350,339	467,399	1,946,198

(a) Included in other liabilities.

The assets of the societies are shewn hereunder :—

ASSETS OF REGISTERED CO-OPERATIVE SOCIETIES, 1919–20.

State.	Stock and Fittings.	Cash in Hand and Sundry Debtors.	Freehold and other Property and other Assets.	Total Assets.
	£	£	£	£
New South Wales	597,385	151,930	39,168	788,483
Victoria	286,385	207,301	161,367	655,053
Queensland	7,925	6,142	22,038	36,105
South Australia	229,020	121,547	37,007	387,574
Western Australia	86,211	64,587	6,746	157,544
Total	1,206,926	551,507	266,326	2,024,759

The following table gives statistical information, so far as available :—

REGISTERED CO-OPERATIVE SOCIETIES, 1919.

Details.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	All States. (a)
Number of Societies on 31st December, 1919	50	70	4	5	19	148
Total No. of members on 31st December, 1919	43,381	20,697	18,499	15,678	2,676	100,931
Total income for year 1919 .. .. £	2,502,140	1,293,749	22,873	659,286	186,487	4,670,535
Working expenses for year ended 31st December, 1919 .. .. £	2,342,031	193,555	21,499	103,078	182,792	2,842,945

(a) Exclusive of Tasmania.

§ 4. Savings Banks.

1. **General.**—The total number of savings banks, with their branches and agencies, in the Commonwealth at the middle of 1920 was 2,320, distributed as follows:—New South Wales, 645; Victoria, 482; Queensland, 528; South Australia, 317; Western Australia, 199; and Tasmania, 149.* These figures are exclusive of the Commonwealth Savings Bank, except in the State of Tasmania, in which the Commonwealth Savings Bank absorbed the State Savings Bank. *In the Northern Territory the* Commonwealth Savings Bank alone is in operation.

In the following tables the figures for all the States except Tasmania refer to financial *years ended 30th June. In the case of Tasmania, figures for the two joint-stock savings* banks were made up to the last day of February in each year up to 1918–19, but in 1919–20 were made up to August, and will be so estimated in subsequent years. In the case of the Commonwealth Bank, figures are made up to the 30th June, 1920.

2. **Depositors.**—The total number of depositors, *i.e.*, of persons having accounts open, not of those making deposits, in each of the last ten years is shewn in the following table:—

NUMBER OF DEPOSITORS IN SAVINGS BANKS (*b*), 1915-16 TO 1919-20.

Year.	N.S.W.	Victoria. (*a*)	Q'land.	S. Aust. (*a*)	W. Aust. (*a*)	Tasmania.	N. Ter.	All States.
1915–16 ..	806,882	821,208	249,235	299,308	157,355	86,489	1,139	2,421,616
1916–17 ..	872,351	869,058	281,585	319,960	172,084	91,680	1,366	2,608,084
1917–18 ..	920,337	913,875	313,248	337,709	182,140	95,154	1,274	2,763,737
1918–19 ..	984,951	966,543	343,424	357,310	192,879	99,565	1,167	2,945,830
1919–20 ..	1,053,893	1,014,223	364,149	377,435	204,005	108,289	987	3,122,981

(*a*) Inclusive of depositors in penny savings banks.
(*b*) Inclusive of Commonwealth Savings Bank.

The subjoined table shews the above figures in relation to the population of the States; it must, of course, be borne in mind that savings bank accounts are not *restricted to the adult population, but that it is, on the contrary, a very usual practice* to open accounts in the names of children. Even so, the proportion is a large one, amounting in the case of the Commonwealth to about four-sevenths and rising in Victoria to nearly two-thirds and in South Australia to more than three-quarters. In the case of this table and the one that follows, it may be pointed out that as it is possible for the same person to have accounts in both Commonwealth and State Savings Banks, the figures given are probably slightly in excess of the number of individual depositors.

DEPOSITORS IN SAVINGS BANKS(*a*) PER 1,000 OF POPULATION, 1915-16 TO 1919-20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
1915–16 ..	434	584	362	690	500	438	235	494
1916–17 ..	467	620	413	744	557	473	271	532
1917–18 ..	482	645	453	768	585	469	242	555
1918–19 ..	501	659	482	784	597	472	237	573
1919–20 ..	519	674	496	799	611	498	225	589

(*a*) Inclusive of Commonwealth Savings Bank.
* Year 1913. In this year the Government Savings Bank was taken over by the Commonwealth Savings Bank.

3. **Deposits.**—The total amount of deposits in the savings banks of the six States reaches the large sum of one hundred and twenty-eight million pounds, and would no doubt be even larger if the banks did not restrict interest-bearing deposits to certain limits. It must be remembered that though not granting facilities to draw cheques, the Australian savings banks practically afford the small tradesman all the advantages of a current account, in addition to which they also allow him interest on his minimum monthly balance, instead of charging him a small fee for keeping his account, as the ordinary banks do. The rates of interest allowed, and the limits of interest-bearing deposits, are as follows:—New South Wales, Government Savings Bank, 3¾ per cent. up to £500; Victoria, 4 per cent. on first £500, and on deposit stock up to £1,000; Queensland, 3½ per cent. up to £1,000; South Australia, 2½ per cent. on accounts closed during the year, and 4 per cent. up to £350 on accounts remaining open; Western Australia, 3½ per cent. from £1 to £500, and 3 per cent. from £500 to £1,000; also 4 per cent. on deposit stock up to £1,000; Hobart Trustees' Savings Bank, 4 per cent. up to £300; Launceston Trustees' Savings Bank, 4 per cent. up to £150, and Commonwealth Savings Bank, 3½ per cent. on the first £1,000 and 3 per cent. upon another £300. The savings banks of the six States including the two trustee banks of Tasmania, have, for the further benefit of depositors, entered into a reciprocity arrangement, under which money deposited in one State may be drawn out in another State, even by telegraph.

The table below shews the total amounts at credit of depositors in each of the last ten years:—

DEPOSITS IN SAVINGS BANKS(a), 1915–16 TO 1919–20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	All States.
	£	£	£	£	£	£	£	£
1915–16 ..	37,363,272	28,789,426	12,938,696	10,035,036	5,338,009	2,534,266	77,956	97,076,601
1916–17 ..	40,836,747	31,581,266	14,725,959	11,351,343	5,846,109	2,695,274	102,848	107,139,046
1917–18 ..	43,039,012	34,598,186	16,501,325	12,899,036	6,290,027	2,917,235	95,071	116,339,892
1918–19 ..	47,070,342	38,772,024	17,510,975	14,808,247	7,002,473	3,285,393	81,097	128,525,541
1919–20 ..	49,983,535	42,317,263	17,909,571	15,496,514	7,258,384	3,930,181	57,106	136,903,154

(a) Inclusive of Commonwealth Savings Bank.

A comparison between the tables shewing the number of depositors and the amount of deposits reveals the fact that the average amounts to the credit of each depositor are considerably larger in some States than in others; in other words, that in one State a comparatively larger proportion of the population makes use of the savings banks, and that the natural result is a smaller amount to the credit of the individual depositor. Within the same State there is little variation in the figures from year to year, except that Victoria and South Australia have shewn a steady advance in the period under review.

AVERAGE AMOUNT PER DEPOSITOR IN SAVINGS BANKS(a), 1915–16 TO 1919–20.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1915–16..	46 6 1	35 1 2	51 18 8	33 10 6	33 18 6	29 6 0	68 8 10	40 1 6
1916–17..	46 16 10	36 6 9	52 5 10	35 9 5	33 19 0	29 7 10	74 18 6	41 1 3
1917–18..	46 15 3	37 17 2	52 13 7	38 3 11	34 10 8	30 13 2	74 12 6	42 1 11
1918–19..	47 15 9	40 2 3	50 19 9	41 8 7	36 8 2	32 19 11	69 9 8	43 12 7
1919–20..	47 7 7	41 14 6	49 3 8	41 1 2	35 11 7	36 5 10	57 17 2	43 16 9

(a) Inclusive of Commonwealth Savings Bank.

The average amount deposited per head of population shews a satisfactory increase during the period under review. Since 1908–9 it has practically doubled itself, the figures for South Australia being particularly noticeable.

SAVINGS BANKS DEPOSITS PER HEAD OF POPULATION, 1915-16 TO 1919-20.

Year.	N.S.W. £ s. d.	Victoria. £ s. d.	Q'land. £ s. d.	S. Aust. £ s. d.	W. Aust. £ s. d.	Tasmania. £ s. d.	N. Ter. £ s. d.	All States. £ s. d.
1915-16..	20 1 0	20 9 6	18 16 5	23 2 11	16 19 3	12 16 8	16 1 9	19 16 1
1916-17..	21 19 5	22 11 2	21 19 0	26 5 9	18 18 7	13 9 10	20 5 11	21 17 7
1917-18..	22 10 7	24 8 5	23 16 9	29 7 0	20 4 4	14 7 7	18 0 9	23 7 2
1918-19..	23 19 7	26 8 6	24 11 4	32 9 4	21 13 4	15 11 7	16 9 7	25 0 1
1919-20..	24 12 3	28 2 7	24 5 11	32 16 0	21 14 7	18 2 10	13 9 2	25 16 8

4. **Annual Business.**—The annual volume of business transacted by the Australian savings banks is very large when compared with the total amount of deposits. This is mainly due to the fact already pointed out that many accounts are used as convenient current accounts. Thus, during the last year of the period under review, the total amount deposited and withdrawn (exclusive of interest added) amounted to about 225 per cent. of the total amount of deposits at the end of the previous year, while the amount at credit of depositors (inclusive of interest added) increased by only about 6½ per cent. during the same year. The following table shews the business transacted during the year 1919-20 :—

SAVINGS BANKS TRANSACTIONS DURING THE YEAR 1919-20.

State.	Total Deposits at end of Year 1918-19.	Amounts Deposited during Year 1919-20.	Interest Added during Year 1919-20.	Total.	Amounts Withdrawn during Year 1919-20.	Total Deposits at end of Year 1919-20.
	£	£	£	£	£	£
N.S. Wales ..	47,070,342	54,660,882	1,597,050	103,328,274	53,394,739	49,933,535
Victoria ..	38,772,024	46,405,327	1,291,082	86,468,433	44,150,570	42,317,863
Queensland ..	17,510,975	17,921,789	559,004	35,991,768	18,082,197	17,909,571
South Australia	14,803,237	14,413,075	531,165	29,747 477	14,250,963	15,496,514
West. Australia	7,002,473	8,580,290	215,742	15,798,505	8,540,121	7,258,384
Tasmania ..	3,285,393	5,202,048	152,146	8,639,587	4,709,406	3,930,181
Nor. Territory ..	81,097	102,963	2,039	186,099	128,993	57,106
Total ..	128,525,541	147,286,374	4,348,228	280,160,143	143,256,989	136,903,154

5. **Commonwealth Savings Bank.**—The Savings Bank department of the Commonwealth Bank started operations in Victoria on 15th July, 1912, in Queensland on 16th September, 1912, in the Northern Territory on 21st October, 1912, and in the States of New South Wales, South Australia, and Western Australia on 13th January, 1913. Business is being transacted on the usual Savings Bank lines, interest at the rate of 3½ per cent. being now allowed on deposits up to £1,000, and 3 per cent. on the next £300. Extensive use is being made of the country post-offices as local agencies, the several States having received notice to remove their Savings Banks from the post-offices by the end of 1912.

The Commonwealth Bank absorbed the Tasmanian State Savings Bank in January, 1913, on terms set out in Official Year Book No. 6. Arrangements for the transfer of the Queensland Savings Bank were completed early in 1920, and it was effected at the end of the year. Consequently this is the last occasion on which the accounts of the Queensland Savings Bank will appear separately

For further particulars concerning the Commonwealth Savings Bank, see Official Year Books Nos. 6–10.

The following table shews for each State the number of depositors, and the amount at credit on 30th June, 1920, in the Commonwealth Savings Bank :—

COMMONWEALTH SAVINGS BANK AS AT 30th JUNE, 1920.

Locality.	Number of Depositors.	Amount at Credit.
		£
New South Wales	186,355	5,506,094
Victoria	115,584	4,572,635
Queensland..	88,721	3,058,435
South Australia	40,094	1,664,173
Western Australia	47,462	1,473,301
Tasmania	53,616	1,407,815
Northern Territory	987	57,106
Papua	1,103	53,078
London	5,873	189,765
Total	539,795	17,982,402

§ 5. Life Assurance.

1. **General.**—Under section 51 of the Commonwealth Constitution Act, the Commonwealth Parliament is empowered to legislate in regard to "insurance, other than State insurance; also State insurance extending beyond the limits of the State concerned." With the exception of Act No. 12 of 1905, "an Act relating to assurance on the lives of children by life assurance companies or societies," no legislation relating to life assurance has been passed by the Commonwealth Parliament, and life assurance companies carry on their business under State laws where such laws are in existence, or otherwise under the provisions of various companies' or special Acts. A Royal Commission consisting of the Honourable J. H. Hood, one of the judges of the Supreme Court of Victoria, and G. H. Knibbs, Esq., C.M.G., Commonwealth Statistician, was, however, appointed in 1908, "to inquire into and report upon the law relating to and the methods of operating, Fire, Life, Industrial, and other Insurance in Australia." The Commission was originally required to report the result of its inquiry before the 30th June, 1909. A progress report was issued before that date, and the time for the final report extended to the 30th June, 1910. The report relating to Life Assurance was published on 15th March, 1910, and that relating to Fire Insurance on 15th October, 1910. On the conclusions contained in these reports future Commonwealth legislation will probably be based. A bill embodying some of the conclusions was introduced into the Federal Parliament on 20th December, 1912, but, owing to lack of time, did not reach its second reading. An additional report on Social Insurance was prepared by the Commonwealth Statistician and issued on 9th September, 1910.

Returns for the year 1919 have been directly collected from life assurance societies by the Commonwealth Statistician, with results which are in the main satisfactory. Figures for 1919 refer to business in the Commonwealth only, and do not include New Zealand business.

2. **Companies Transacting Business in the Commonwealth.**—The total number of companies at present established in the Commonwealth is twenty, of which the following nine have their head offices in New South Wales :—The Australian Mutual Provident Society, the Mutual Life and Citizens' Assurance Company Limited, the City Mutual Life Assurance Society Limited, the Australian Metropolitan Life Assurance Company Limited, the People's Prudential Assurance Company Limited, the Life Insurance Company, the Assurance and Thrift Association Limited, the Co-operative Assurance Company Limited, and the Australian Provincial Assurance Association Limited. The Mutual Life and Citizens' Assurance Company Limited was formed in 1908 by the amalgamation of the Mutual Life Association of Australasia and the Citizens' Life Assurance Company Limited. During 1910 it increased in size by amalgamating with the Australian Widows' Fund Life Assurance Society Limited, which is therefore no longer included in the list of independent corporations. Five companies have their head offices in Victoria, viz. :—

The Australian Alliance Assurance Company, the National Mutual Life Association of Australasia Limited, the Victoria Life and General Insurance Company, the Colonial Mutual Life Assurance Society Limited, and the Australasian Temperance and General Mutual Life Assurance Society Limited. The head office of the Queensland State Insurance Office is in Brisbane. The head office of the Provident Life Assurance Company is in New Zealand, and that of the Liverpool and London and Globe Insurance Company in England. The remaining three societies belong to the United States, viz. :—The Equitable Life Assurance Society of the United States, the Mutual Life Insurance Society of New York, and the New York Life Insurance Society.

Most of the Australian companies are purely mutual; the following, however, are partly proprietary, the figures in brackets representing the shareholders' capital paid up :—The Victoria Life and General (£40,000), Mutual Life and Citizens' (£200,000), Metropolitan (£11,839), Prudential (£10,000), Life Insurance Company (£44,000), Assurance and Thrift (£17,684), Co-operative Assurance (£56,675), and Australian Provincial Association (£97,846). Of foreign companies transacting business in the Commonwealth, the Liverpool and London and Globe, the Provident, and the Equitable are partly proprietary, the shareholders' capital amounting to £265,525, £21,000, and £20,550 respectively.

3. **Ordinary and Industrial Business.**—Of the societies enumerated in the preceding paragraph, the following seven in 1919 transacted both ordinary and industrial business :—The Australian Mutual Provident Society, the Mutual Life and Citizens' Assurance Company Limited, the Australasian Temperance and General Mutual Life Assurance Society Limited, the Australian Metropolitan Life Assurance Company Limited, the Colonial Mutual Life Assurance Society, the Life Insurance Company, and the Co-operative Assurance Company.

The People's Prudential Assurance Company Limited and the Provident Life Assurance Company formerly restricted their operations to industrial business, but have now established an ordinary department.

The remaining nine societies transacted ordinary life assurance business only, with the exception of those companies which have fire and accident branches, etc.

It has been attempted in this section to keep returns relating to ordinary and to industrial business apart, so far as it is possible to do so, and figures relating to companies whose head offices are in New Zealand or in Europe or America refer to the Australian business only of those companies.

4. **Ordinary Business : Australian Business in Force, 1919.**—The subjoined table shews the ordinary life business in force at the latest dates available for the nineteen societies conducting operations in the Commonwealth :—

ORDINARY LIFE ASSURANCE.—AUSTRALIAN BUSINESS IN FORCE, 1919.

Society.	Policies in force, exclusive of Annuities.	Amount Assured, exclusive of Bonus Addition, etc.	Annual Premium Income, exclusive of Annuities.
	No.	£	£
Australian Mutual Provident Society	279,703	80,196,560	2,507,698
Mutual Life and Citizens' Assurance Company Limited	98,345	18,744,529	657,973
City Mutual Life Assurance Society	32,558	6,521,174	257,640
Australian Metropolitan Life Assurance Company	5,347	610,060	26,235
Australian Alliance Assurance Company	216	72,783	1,630
National Mutual Life Association of Australasia	80,929	21,701,358	791,811
Victoria Life and General Insurance Company	42	30,256	530
Colonial Mutual Life Assurance Society	32,621	6,670,904	242,255
People's Prudential Assurance Company	5,001	395,105	(a)30,659
Australasian Temperance and General Mutual Life Assurance Society	54,815	7,051,592	277,218
Liverpool and London and Globe Insurance Company (Life Branch)	208	73,641	2,876
Provident Life Assurance Company	1,016	104,775	3,912
Life Insurance Company	6,576	1,756,563	73,829
Assurance and Thrift Association Limited	1,485	281,108	11,538
Co-operative Assurance Company	1,093	295,787	10,084
Australian Provincial Assurance Association Limited	18,628	3,570,433	137,097
The Queensland State Insurance Office	8,691	1,374,657	39,057
Equitable Life Assurance Society of United States	3,545	1,118,744	41,362
Mutual Life Insurance Society of New York	2,773	1,035,200	25,296
New York Life Insurance Society	4,384	2,073,649	70,978

(a) Including industrial.

5. Industrial Business: Australian Business in Force, 1919.—Similar information in regard to the industrial business of the nine societies transacting this kind of business is given in the following table:—

INDUSTRIAL ASSURANCE.—AUSTRALIAN BUSINESS IN FORCE, 1919.

Society.	Policies in Force.	Amount Assured.	Annual Premium Income.
	No.	£	£
Australian Mutual Provident Society	186,501	7,547,610	407,554
Mutual Life and Citizens' Assurance Company ..	256,586	5,060,080	293,540
Australian Metropolitan Life Assurance Company ..	37,377	1,122,871	58,776
Colonial Mutual Life Assurance Society	81,511	2,218,343	134,621
People's Prudential Assurance Company	5,411	138,288	(a)
Aust. Temperance and General Mutual Life Ass. Society	248,313	5,977,033	465,681
Provident Life Assurance Company	16,127	452,225	23,236
Life Insurance Company	3,819	93,554	6,028
Co-operative Assurance Company	5,356	145,452	8,463

(a) Included in ordinary.

6. Receipts and Expenditure of Assurance Societies, 1919.—(i) *Ordinary Business.* The following returns refer to the Australian business of all societies doing business in the Commonwealth. The People's Prudential Assurance Company, whose accounts do not distinguish between revenue and expenditure on account of ordinary and industrial business, has been included among the companies doing industrial business.

ORDINARY LIFE ASSURANCE.—AUSTRALIAN RECEIPTS AND EXPENDITURE, 1919.

Society.	Receipts.	Expenditure.	Excess Receipts (Addition to Funds).
	£	£	£
Australian Mutual Provident Society	4,129,337	2,902,747	1,226,590
Mutual Life and Citizens' Assurance Company ..	1,043,569	804,615	238,954
City Mutual Life Assurance Society	393,057	213,037	180,020
Australian Metropolitan Life Assurance Company ..	31,451	16,269	15,182
Australian Alliance Assurance Company	5,140	11,975	(a) 6,835
National Mutual Life Association of Australasia ..	1,307,411	714,355	593,056
Victoria Life and General Insurance Company ..	3,894	13,492	(a)9,598
Colonial Mutual Life Assurance Society	397,379	222,785	174,594
Aust. Temperance and General Mutual Life Ass. Soc.	356,175	201,759	154,416
Liverpool and London and Globe (Life Branch) ..	2,378	19,782	(a)17,404
Provident Life Assurance Company	4,453	1,658	2,795
Life Insurance Company	77,043	59,792	17,251
Assurance and Thrift Association Limited ..	15,361	8,313	7,048
Co-operative Assurance Company	13,298	8,858	4,440
Australian Provincial Assurance	140,880	100,828	40,052
Queensland State Office	60,656	35,304	25,352
Equitable Life Assurance Society	79,424	141,036	(a) 61,612
Mutual Life Insurance Society of New York ..	33,997	78,304	(a) 44,307
New York Life Insurance Society	77,711	143,642	(a) 65,931

(a) Decrease.

(ii) *Industrial Business.* A similar return for those societies which transact industrial business is given below. The figures for the Prudential, as stated above, are included therein.

INDUSTRIAL LIFE ASSURANCE.—AUSTRALIAN RECEIPTS AND EXPENDITURE, 1919.

Society.	Receipts.	Expenditure.	Excess Receipts (Addition to Funds).
	£	£	£
Australian Mutual Provident Society	504,287	177,537	326,750
Mutual Life and Citizens' Assurance Company ..	360,553	325,679	34,874
Australian Metropolitan Life Assurance Company ..	*62,011*	*48,716*	*13,295*
Colonial Mutual Life Assurance Society	146,619	81,724	64,895
People's Prudential Assurance Company	34,480	25,174	9,306
Aust. Temperance and General Mutual Life Ass. Soc.	526,280	301,763	224,517
Provident Life Assurance Company	25,006	16,520	8,486
Life Insurance Company	6,346	5,000	1,346
Co-operative Assurance Company	9,118	10,861	(a)1,743

(a) Decrease.

7 **Liabilities and Assets of Assurance Societies, 1919.**—The liabilities of the Australian societies consist mainly of their assurance funds; as already mentioned, however, nine of the societies are partly proprietary, viz., the Mutual Life and Citizens', with a paid-up capital of £200,000; the Metropolitan, with a paid-up capital of £11,839; the Prudential, with a paid-up capital of £10,000; the Victoria Life and General, with a paid-up capital of £40,000; the Provident, with a paid-up capital of £21,000; the Life Insurance Company, with £44,000; the Assurance and Thrift, with £17,684; Co-operative Assurance Company, with £56,075; and the Australian Provincial with £97,846. With the exception of the Victoria, the Life Insurance, Assurance and Thrift, and Australian Provincial, this paid-up capital belongs in every case to the industrial branch of the respective societies. The capital of the Provident (£21,000) is held in New Zealand, that of the Liverpool and London and Globe (£265,525) in England, and that of the Equitable Life (£20,550) in the United States. None of these three amounts appears, therefore, in the two subjoined tables, where the capital of the Australian societies is included with the assurance funds. The assets consist mainly of loans on mortgage and policies, Government, municipal, and similar securities, shares, freehold property, etc. As in some cases the Australian liabilities exceed the Australian assets, it may be pointed out that this table should be read in connexion with the table on page 766, which sets out the total assets. Loans on personal security are granted by very few of the Australian societies.

(i) *Ordinary Business.* The following table shews the liabilities and assets of the societies transacting ordinary life business:—

ORDINARY LIFE ASSURANCE.—AUSTRALIAN LIABILITIES AND ASSETS, 1919.

Society.	Liabilities.			Assets.(c)		
	Total Funds including Paid-up Capital.	Other Liabilities.	Total.	Loans on Mortgages and Policies.	Securities, Freehold Property, etc.	Total.
	£	£	£	£	£	£
Australian Mutual Provident Society (a)	34,631,271	669,523	35,300,794	12,801,681	19,435,789	32,237,470
Mutual Life and Citizens' Assurance Co.	(b)	(b)	(b)	*2,103,767*	*5,441,773*	*7,545,540*
City Mutual Life Assurance Society ..	1,381,221	112,275	1,493,496	752,987	740,509	1,493,496
Australian Metropolitan Life Assurance Company	*115,696*	*1,767*	*117,463*	*11,248*	*106,215*	*117,463*
Australian Alliance Assurance Company	79,416	4,662	84,078	29,299	54,779	84,078
National Mut. Life Assoc. of Australasia	(b)	(b)	(b)	5,640,821	4,652,898	10,293,719
Victoria Life and General Insurance Co.	78,925	2,818	81,743	7,350	74,393	81,743
Colonial Mutual Life Assurance Society	2,365,803	316,352	2,682,155	811,742	1,870,413	2,682,155
Australasian Temperance and General *Mutual Life Assurance Society (a)* ..	*2,955,841*	*117,149*	*3,072,990*	*717,172*	*2,355,818*	*3,072,990*
Liverpool and London and Globe (Life Branch)	(b)	(b)	(b)	(b)	(b)	(b)
Provident Life Assurance Company ..	11,686	289	11,975	329	14,048	14,377
Commonwealth Life Insurance Co. ..	121,652	4,991	126,643	24,969	101,674	126,643
Assurance and Thrift Association Ltd. ..	58,679	4,616	63,295	45,576	15,824	61,400
Co-operative Assurance Company (a) ..	*81,615*	*625*	*82,240*	*7,805*	*74,435*	*82,240*
Australian Provincial Assur. Assocn. Ltd.	174,234	70,120	244,354	5,459	223,048	228,507
Queensland State Office	34,437	2,377	36,814	15,596	21,218	36,814
Equitable Life Assurance Society ..	(b)	(b)	(b)	*142,605*	*281,289*	*423,894*
Mutual Life Insurance Society of New York	(b)	(b)	(b)	102,303	61,594	163,897
New York Life Insurance Society ..	728,000	15,247	743,247	112,441	46,191	158,632

(ii) *Industrial Business.* As stated in the footnote to the preceding table, the Australian Mutual Provident Society, the Australasian Temperance and General Mutual Life Assurance Society, and the Co-operative Assurance Company, which transact a certain amount of industrial business, but whose business is mainly ordinary life business, have been included with those societies doing only ordinary life business. On the other hand, the People's Prudential Assurance Company, in whose case industrial business greatly predominates over ordinary life business, has been included in the following table. Incomplete as the table is, it shews that the funds appropriated to industrial business are very insignificant in comparison with those pertaining to ordinary life business. Taking the table in conjunction with the statements of revenue and expenditure, the question may well be asked whether in the case of some of the societies, industrial business is worth catering for.

INDUSTRIAL LIFE ASSURANCE.—AUSTRALIAN LIABILITIES AND ASSETS, 1919.

Society.	Liabilities.			Assets.		
	Total Funds including Paid-up Capital.	Other Liabilities.	Total.	Loans on Mortgages and Policies.	Securities, Freehold Property, etc.	Total.
	£	£	£	£	£	£
Mutual Life and Citizens' Assurance Co.	(*b*)	(*b*)	(*b*)	7,483	5,058,585	5,066,068
Australian Metropolitan Life Assurance Company	95,139	6,817	101,956	2,250	99,706	101,956
Colonial Mutual Life Assurance Society	325,170	948	326,118	4,839	321,279	326,118
People's Prudential Assurance Co.(*a*) ..	87,732	56	87,788	57,793	29,995	87,788
Provident Life Assurance Company ..	26,322	..	26,322	721	26,210	26,931

(*a*) Including ordinary business. (*b*) Particulars not available.

(iii) *Total Assets.* It has been thought advisable to confine the figures relating to life assurance to business in the Commonwealth. Several of the companies whose head offices are in Australia transact, however, a large amount of business elsewhere, viz., in New Zealand, in South Africa, and in the United Kingdom, while in the case of the foreign companies, the Australian business is insignificant compared with that done elsewhere. Particulars as to this foreign business of both Australian and foreign companies will be found in "Finance Bulletin, No. 11" (published by this Bureau), and a short table only is inserted here, shewing the total assets of the various companies, so that the deficiencies in the Australian assets shewn in the previous tables for those companies doing business elsewhere may not be misunderstood :—

TOTAL ASSETS OF ASSURANCE COMPANIES, 1919.

Society.	Assets.	Society.	Assets.
ORDINARY BUSINESS.	£	ORDINARY BUSINESS—*continued.*	£
Australian Mutual Provident Soc.(*a*)	42,070,644	Co-operative Assurance Co. (*a*) ..	82,240
Mutual Life and Citizens' Assur. Co.	10,041,101	Aust. Provincial Assurance Assocn.	287,709
City Mutual Life Assurance Society ..	1,493,496	Queensland State Office	36,814
Aust. Metropolitan Life Assur. Co. ..	117,463	Equitable Life Assurance Society ..	123,290,402
Australian Alliance Assurance Co. ..	84,078	Mutual Life Ins. Society of New York	136,014,430
National Mutual Life Association ..	13,356,399	New York Life Insurance Society ..	197,515,772
Victoria Life and General Insur. Co.	81,743		
Colonial Mutual Life Assurance Soc.	5,252,601	INDUSTRIAL BUSINESS.	
Australasian Temperance and General Mutual Life Assurance Soc.(*a*) ..	3,482,054	Mutual Life and Citizens' Assur. Co.	5,111,702
Liverpool & London & Globe (Life)	19,028,152	Australian Metropolitan Life Assurance Company	101,956
Provident Life Assurance Company ..	86,099	Colonial Mutual Life Assurance Soc.	404,334
Commonwealth Life Insurance Co. ..	126,643	People's Prudential Assur. Co.(*b*)	87,788
Assurance and Thrift Assocn. Ltd. ..	63,380	Provident Life Assurance Company	159,180

(*a*) Including industrial business. (*b*) Including ordinary business.

has reported upon fire insurance matters, and Commonwealth legislation may, therefore, be expected in the future. Legislation concerning fire insurance was, in fact, contained in the bill to which reference has already been made. [§ 5, sub-section 1.]

2. **Sydney.**—Under the Fire Brigades Act 1902 the cost of the Metropolitan Fire Brigade is defrayed by equal payments on the part of the Colonial Treasurer, the municipal councils within the area under the jurisdiction of the Fire Brigades Board, and the insurance companies represented in Sydney. The companies divide their share proportionately to the amount held at risk. A new Act, which came into force on the 1st January, 1910, was passed in 1909. This Act substituted a Board of Fire Commissioners for New South Wales for the original Metropolitan Fire Brigades Board, and divided the whole State into eight fire districts for the greater facilitation of working.

3. **Melbourne.**—In Melbourne the Metropolitan Fire Brigades Board assesses the amount payable by the insurance companies on the amount of premiums returned. These premiums for the last four years averaged about £600,000 per annum, while the contributions paid by the companies averaged about £29,500, or about £5 for every £100 of premiums. It may be said, therefore, that the companies have to devote about 5 per cent. of their premium income from metropolitan insurances to the maintenance of the fire brigade.

The value of ratable property is about £8,434,000, and the amounts contributed by the municipalities—as in the case of the insurance companies, one-third of the amount required by the Fire Brigades Board, the remaining one-third being contributed by the State Treasurer—are equal to about $\frac{1}{16}$d. per £1 of ratable value. In addition to this contribution, insurance companies doing business in Victoria have to take out an annual license at a cost of $1\frac{1}{4}$ per cent. of the gross premium income, which is probably equal to about $1\frac{2}{3}$ per cent. on net income.

4. **Country Districts of Victoria.**—The country districts are divided into nine areas for fire insurance purposes, and the contributions to be paid vary in these areas according to the actual requirements of the Country Fire Brigades Board. The value of ratable property for the last year was slightly over £1,856,000. The premium income of the insurance companies from country business in protected areas during the year 1919 was about £239,000, and the contributions of the companies £4,909, equal to rather more than 2 per cent. of the premium income.

5. **Brisbane.**—A similar arrangement holds good in Brisbane, under which the cost of the Fire Brigade Board, amounting to about £25,000 per annum, is paid in equal shares by the Government, the Brisbane City Council, and the insurance companies.

6. **Adelaide.**—The Fire Brigades Board of South Australia is incorporated under "The Fire Brigades Act 1904"; "The Fire Brigades Act Amendment Act 1905"; and "The Fire Brigades Act Further Amendment Act 1910." The cost is distributed as follows:—Three-ninths to the Government; four-ninths to the insurance companies; and two-ninths to the municipalities and districts which come under the operations of the board. The insurance companies are assessed in proportion to that portion of their premium incomes derived from the insurance of property (re-insurance within the State excepted) situated within the limits of the municipalities and districts coming under the operations of the board. The respective contributions for 1919 were as follows:—The Government, £10,376; the companies, £13,835; the municipalities, £6,917.

7. **Perth.**—A District Fire Brigades Bill was reported on by a committee of the Legislative Assembly during 1909, and it was recommended that all brigades should in future be controlled by one board, and that the expense should be met by contributions at the following rate:—By Government, two-eighths; by the municipalities, three-eighths; and by the insurance companies, three-eighths. These provisions were incorporated in an Act, "The District Fire Brigades Act 1909," which was assented to on 21st December, 1909, and came into force on the 1st day of January, 1910. This

Act is now superseded by the Fire Brigades Act 1916 which came into operation on 2nd April 1917. It provides that every municipal or road board district shall be a fire district for the purposes of the Act, under the control of the Western Australian Fire Brigades Board. The income of the Board is derived in the same proportions as provided for in the Act of 1909. The latest valuation of ratable property is £1,583,000, and expenditure £31,550, of which the Government paid £7,888, the municipalities £11,831 and the insurance companies, £11,831.

8. **Australian Fire Insurance Business.**—Returns are available shewing the revenue and expenditure, assets and liabilities, and investments of twenty-seven insurance companies having their head offices either in the Commonwealth or in New Zealand. Those companies are :—(*a*) with head office in Sydney—the Australian Mutual Fire Insurance Company, the City Mutual Fire Insurance Company, the Mercantile Mutual Fire Insurance Company, the Queensland Insurance Company Limited, the United Insurance Company, the Insurance Office of Australia Limited, the Federal Mutual Insurance Company of Australia, The Manufacturers' Mutual and the Farmers and Settlers ; (*b*) with head office in Melbourne—the Australian Alliance Assurance Company, the Colonial Mutual Fire Insurance Company, the Victoria Insurance Company, the Victoria General Insurance and Guarantee Company Limited, the Co-operative Insurance Company of Australia, the Chamber of Manufactures, and the Victoria State Accident Office; (*c*) with head office in Hobart—the Derwent and Tamar Fire and Marine Assurance Company Limited; (*d*) with head office in Launceston—the Mutual Fire Insurance Company of Tasmania, (*e*) with head office in Auckland—the New Zealand Insurance Company, and the South British Fire and Marine Insurance Company of New Zealand; (*f*) with head office in Dunedin—the National Fire and Marine Insurance Company of New Zealand, and the Standard Fire and Marine Insurance Company of New Zealand; (*g*) with head office in Wellington—the New Zealand State Fire Insurance Office, and the New Zealand Government Accident; (*h*) with head office in Christchurch—the Farmers' Co-operative Insurance Association of New Zealand; (*i*) with head office in Perth—the Western Australian Insurance Company; and (*j*) with head office in Brisbane—the Queensland State Government. As their names imply, many of these companies transact marine insurance, and in some cases guarantee and other business, in addition to the fire insurance business, and the returns relating to the latter cannot be separated from the former.

The accounts given hereunder cover two consecutive years, the second year ending at various dates from 31st December, 1918, to 30th April, 1920. The figures for the first year are in brackets.

The premiums, less reinsurances and returns, amounted to £4,957,322 (£5,308,884); losses were £2,608,869 (£2,728,571). Expenses and commission came to £1,577,784 (£1,527,046), and there was, therefore, a profit on trade operations of £770,669 (£1,053,267). As, however, interest, rent, fees, etc., amounted to £379,447 (£328,119), the total profit was £1,150,116 (£1,381,386). Dividends and bonuses came to £396,899 (£374,722). The ratio to premium income of losses was, therefore, 52.63 per cent. (51.40 per cent.), and of expenses and commissions, 31.83 per cent. (28.76 per cent.). The resulting ratio of trade surplus to premium income was 15.54 per cent. (19.84 per cent.).

The paid-up capital of the twenty-seven companies was £3,365,235 (£3,109,956); reserve and reinsurance funds, £4,627,900 (£4,203,548); undivided profits, £384,394 (£335,844). The total paid-up capital and reserves were, therefore, £8,377,529 (£7,649,348). In addition to these liabilities there were others, viz. :—Unsettled losses, £790,992 (£643,412); sundry creditors, £1,126,707 (£1,095,013); dividends payable, £297,617 (£283,677); and, in the case of two companies, life assurance funds £136,732 (£96,043); thus bringing the total liabilities to shareholders and to the general public up to £10,729,577 (£9,767,193).

The corresponding amount of assets is made up of investments, £8,806,746 (£8,044,811), viz. :—Loans on mortgage, £1,138,221 (£1,198,576); Government securities, debentures, shares, etc., £4,935,958 (£4,162,448); landed and other property, including furniture, £1,332,642 (£1,288,591); fixed deposits, £1,221,824 (£1,198,652); in the case

of one company doing a mixed business—loans on its own life policies, etc., £4,297 (£4,503); other investments, £183,804 (£172,041). The balance of assets consisted of cash in bank, on hand, and bills receivable, £831,063 (£811,909); and sundry debtors, etc., £1,091,768 (£910,773).

The financial position of the companies is undoubtedly a strong one, owing to the steady accumulation of reserves, and the high ratio borne by capital and reserves to premium income must be a cause of satisfaction to policy holders.

§ 7. Marine Insurance.

No returns are available in regard to Marine Insurance. It may, however, be stated that the Commonwealth Parliament in 1909 passed an Act (No. 11 of 1909, "An Act relating to Marine Insurance") which was assented to on the 11th November, 1909. This Act materially alters some of the conditions under which marine policies have heretofore been issued.

§ 8. Friendly Societies.

1. **General.**—Friendly societies are an important factor in the social life of the community, as probably one-third of the total population of the Commonwealth comes either directly or indirectly under their influence. Their total membership is about 480,000, but as certain benefits, such as medical attendance and free medicines, and in many cases funeral expenses, are granted to members' families as well as to members themselves, this figure must, even when due allowance is made for young and unmarried members, be multiplied by at least four to arrive at the total number of persons more or less connected with these societies. Legislation has conferred certain privileges on friendly societies, but, on the other hand, it insists on their registration, and it is the duty of the Registrars in the various States, prior to registering a new society, to see that its rules are conformable to the law, and that the scale of contribution is sufficiently high to enable the promised benefits to be conferred on members. Societies are obliged to forward annual returns as to their membership and their finances to the Registrar, and elaborate reports are published in most of the States dealing with the returns thus received.

In the following tables the figures refer to the year 1919.

2. **Number of Societies, Lodges, and Members.**—The total number of societies registered in New South Wales is 61; in Victoria, 49; in Queensland, 20; in South Australia, 17; in Western Australia, 15; and in Tasmania, 19. No total is given of these figures for the Commonwealth, as the societies shewn in one State are in most cases represented in all the other States. The number of different lodges, the total number of benefit members at the end of the year, and their average number during the year are shewn in the following table:—

FRIENDLY SOCIETIES.—LODGES AND MEMBERS, 31st DECEMBER, 1919.

State.	Number of Lodges.	Benefit Members at End of Year.	Average No. of Benefit Members during Year.
New South Wales	1,925	169,482	167,949
Victoria	1,489	144,280	146,919
Queensland	553	54,448	53,786
South Australia	593	68,542	67,795
Western Australia	280	18,388	18,087
Tasmania	190	22,530	22,406
Commonwealth	5,030	477,670	476,942

3. Sickness and Death.—Sick pay is generally granted for a number of months at full rates, then for a period at half rates, and in some societies is finally reduced to quarter rates. The following table shews the total number of members who received sick pay during the year, the number of weeks for which they received pay in the aggregate, and the average per member sick, and further the number of benefit members who died during the year, together with the proportion of deaths per thousand average members :—

FRIENDLY SOCIETIES.—SICKNESS AND DEATH, 1919.

State.	Number of Members who received Sick Pay.	Total Number of Weeks Sick Pay Granted.	Average Number of Weeks per Member Sick.	Deaths of Benefit Members and Wives.	Proportion of Deaths to 1,000 average Benefit Members.
New South Wales ..	(a)	(a)	(a)	(a)	(a)
Victoria	46,612	406,817	8.73	2,962	20.16
Queensland	14,206	77,453	5.45	606	11.27
South Australia	15,770	135,717	8.61	1,242	18.32
Western Australia ..	4,626	36,211	7.83	229	12.60
Tasmania	5,402	36,787	6.81	397	17.72
Commonwealth (b) ..	86,616	692,985	8.00	5,436	17.59

(a) Not available. (b) Exclusive of New South Wales.

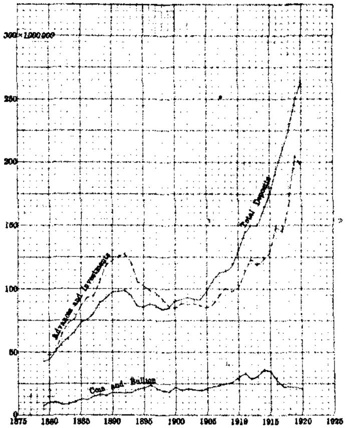
4. Revenue and Expenditure.—The financial returns are not prepared in the same way in each State, but an attempt has been made in the subjoined table to group the revenue under the main headings :—

FRIENDLY SOCIETIES.—REVENUE, 1919.

State.	Entrance Fees, Members' Contributions, and Levies.	Interest, Dividends, and Rents.	All other Income.	Total Revenue.
	£	£	£	£
ew South Wales	551,278	117,524	40,740	709,542
ictoria	451,101	143,207	70,218	664,526
ueensland	187,573	44,789	..	232,362
outh Australia	172,713	67,387	49,321	289,421
estern Australia	54,837	16,872	33,195	104,904
asmania	69,603	12,240	17,125	98,968
Commonwealth ..	1,487,105	402,019	210,599	2,099,723

The returns relating to expenditure are more complete than those relating to revenue, id can be shewn in full for every State. The figures shew that the excess of revenue, as only £75,581 for the entire Commonwealth, a result for which the outbreak of pneumonic influenza was probably responsible. The revenue exceeded the expenditure by out three shillings per average benefit member, a margin which cannot be called very rge.

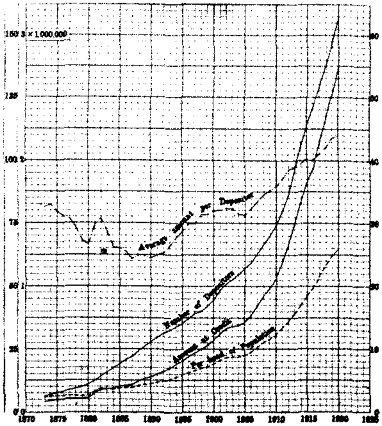
AUSTRALIAN BANKING STATISTICS.—CHEQUE-PAYING BANKS IN AUSTRALIA, 1870 TO 1920.



See pp. 753 to 755.

EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year, and its vertical height a sum of £5,000,000.

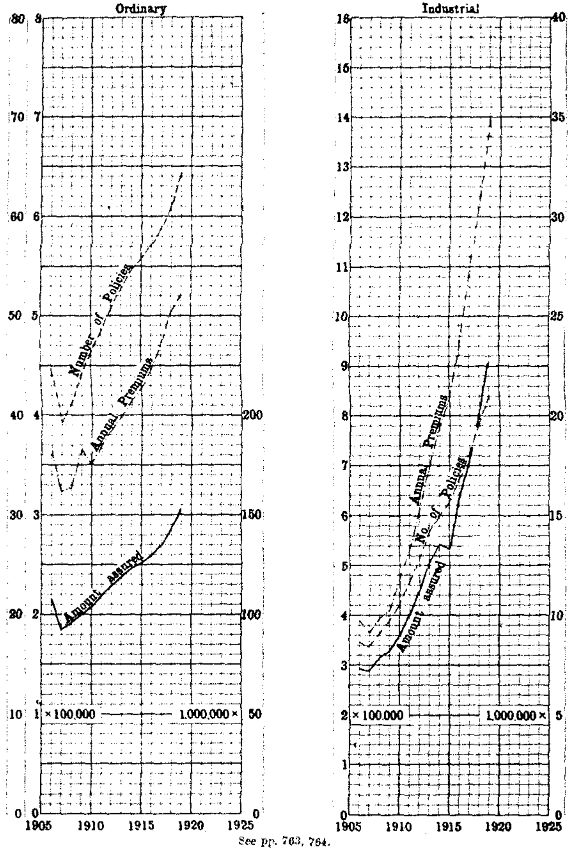
SAVINGS BANKS IN AUSTRALIA, 1873 TO 1920.



See pp. 759 to 762.

EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year. Of the two scales on the left, the outer one represents the amount at credit, and the inner one the number of depositors, while the vertical height of each small square represents £2,500,000 and 50,000 in number respectively. The scale on the right represents the average amount per depositor, and per head of population respectively, while the vertical height of each small square represents £1.

GRAPHS SHEWING LIFE ASSURANCE IN ORDINARY AND INDUSTRIAL DEPARTMENTS IN THE COMMONWEALTH OF AUSTRALIA, 1906 TO 1919.



See pp. 763, 764.

EXPLANATION OF GRAPHS.—*The base of each small square represents in each graph an interval of one year.*

In the case of the "Ordinary" Assurance graph, there are three scales—two on the left—the outer one representing the Annual Premiums, and the inner one the number of Policies in force,—and one on the right representing the Amount Assured, exclusive of bonus additions. The vertical height of each small square represents £100,000, 10,000 in number and £5,000,000 respectively.

In the case of the "Industrial" Assurance graph, the scale on the left represents the Annual Premiums and the number of Policies in force, and the scale on the right the Amount Assured, exclusive of bonus additions. The vertical height of each small square represents £20,000, 20,000 in number and £500,000 respectively.

FRIENDLY SOCIETIES.—EXPENDITURE, 1919.

State.	Sick Pay.	Medical Attendance and Medicine.	Sums Paid at Death of Members and Members' Wives.	Administration.	All other Expenditure.	Total Expenditure.
	£	£	£	£	£	£
New South Wales ..	274,929	186,801	89,205	106,115	42,818	699,928
Victoria	298,170	178,980	54,164	81,067	68,562	680,943
Queensland	61,081	65,978	31,054	39,696	..	197,809
South Australia ..	86,237	38,769	38,749	34,870	48,769	247,403
Western Australia ..	29,569	18,484	6,298	14,327	39,719	108,397
Tasmania	28,139	19,689	21,248	13,029	7,557	89,662
Commonwealth ..	778,125	508,701	240,778	289,113	207,425	2,024,142

It appears from the above figures that sick pay averaged about twenty-two shillings per week, but, as the returns include pay at half and quarter rates, and as the proportion of these to full rates is not stated, the average given must be taken for what it is worth. Medical attendance and medicine came to about one pound per average benefit member.

5. **Funds.**—The two foregoing tables shew that the surplus of revenue over expenditure in five States amounted to £75,581 for the year, and a small surplus must, of course, result annually in every society which levies adequate contributions to enable it to meet all possible claims. These accumulations of profits are generally invested, and the subjoined table shews for all of the six States the division into invested and uninvested funds :—

FRIENDLY SOCIETIES.—FUNDS, 31st DECEMBER, 1919.

State.	Invested Funds.	Uninvested Funds.	Total Funds.
	£	£	£
New South Wales	2,217,796	(a)	2,217,796
Victoria	2,957,821	98,845	3,056,666
Queensland	977,812	3,272	981,084
South Australia	1,397,124	22,043	1,419,167
Western Australia	270,355	8,298	278,653
Tasmania	257,580	13,197	270,777
Commonwealth	8,078,488	145,655	8,224,143

(a) Included in Invested Funds.

The total funds amounted, therefore, to about £17 per member at the close of the year under review.

§ 9. Probates.

1. **Number of Probates and Letters of Administration and Value of Estates.**—The alue of the estates left by deceased persons gives a fair view of the distribution of roperty among the general population. There occurred in 1919 the deaths of 39,545 dult persons, while the total number of probates and letters of administration granted uring the same period was 19,950. It would therefore appear that about one half of

the adults who died during the year were possessed of sufficient property to necessitate the taking out of probate. The details for each State are shewn in the table hereunder :—

PROBATES AND LETTERS OF ADMINISTRATION, 1919.

State.	Number of Estates. Probates.	Letters of Administration.	Total.	Net Value of Estates. Probates.	Letters of Administration.	Total.
				£	£	£
New South Wales ..	7,188	(a)	7,188	17,131,131	(a)	17,131,131
Victoria	4,585	2,819	7,404	13,844,186	(a)	13,844,186
Queensland	947	175	1,122	3,439,594	294,370	3,733,964
South Australia ..	1,671	648	2,319	3,238,680	231,320	3,470,000
Western Australia ..	961	392	1,353	1,677,745	774,083	2,451,828
Tasmania	474	90	564	1,298,953	91,883	1,390,836
Commonwealth ..	15,826	4,124	19,950	40,630,289	1,391,656	42,021,945

(a) Included with Probates.

The number of intestate estates placed under the control of the Curator during the year, and the amount of unclaimed money paid into Consolidated Revenue in each State during the year 1919 are shewn hereunder :—

INTESTATE ESTATES, 1919.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
Intestate estates placed under control of Curator during 1919—							
Number	(a)	831	2,077	392	522	134	(b)
Value .. £	(a)	91,928	535,083	(a)	74,303	30,216	(b)
Unclaimed money paid into Consolidated Revenue by Curator during 1919 £	50,457	758	5,555	787	4,566	...	62,123

(a) Included above. (b) Not available.

On pages 771 and 772 will be found a series of graphs illustrating the progress of Banking and Life Assurance. The graphs on Banking cover a period of about forty years, and include cheque-paying Banks and Savings Banks. The graphs dealing with Life Assurance go back to 1906 only, and include ordinary and industrial business.

SECTION XXII.

PUBLIC INSTRUCTION.

§ 1. Evolution of Educational Systems in Australia.

1. **Educational Systems of the States.**—(i) *Place of New South Wales in Australian Education.* The first settlement in Australia being in New South Wales, it is but natural that Australian education should have had its beginning in that State. In the evolution of educational method and system in Australia, New South Wales also has played a leading part, and has had practically a dominating influence. For that reason an account of the evolution of education in this State contains, as it were, the key to the understanding of the Australian attitude to this question. The subject is dealt with in some detail in No. I. and No. II. issues of the Commonwealth Official Year Book, but it is not proposed to repeat it in the present volume. (See also 2 hereunder.)

(ii) *Educational Systems of Commonwealth States.* A more or less detailed account of the origin and development of the primary educational systems of the other States also appears in No. I. and No. II. issues of the Year Book. Later details are given hereunder.

2. **Recent Development in State Educational Systems.**—(i) *New South Wales.* The year 1913 was an important one in New South Wales educational history, in that it was the first complete year of active operation of the principles laid down in the University Amendment Act and the Bursary Endowment Act of 1912. More extended reference to these Acts will be found later on. It was also remarkable for the reorganisation of technical education on a Trades School basis and of the Superior Schools on a vocational basis. Reference may also be made to the development of the Evening Continuation Schools established in 1911, and to the wide extension of the scheme of school medical inspection. As pointed out in a preceding Official Year Book (see No. VII., page 765), the Education Department instituted a scheme of examinations in 1911 for what were termed respectively the "qualifying," "intermediate," and "leaving" certificate. The first "qualifying" examination was held in March, 1911, the first "intermediate" in November, 1912, and the first "leaving" in November, 1913. The successful students who were awarded exhibitions at the leaving certificate examination took up University studies in the first term of 1914, thus marking the definite linking up of the State School system with the University. Amongst noteworthy features in the year 1914 were the remarkable increase in school population, the establishment of Trade Schools, the expansion of secondary education, and the extension of the scheme of school medical inspection. The travelling hospital and the travelling ophthalmic and dental clinics are rendering splendid service in the remote and sparsely settled districts. During the last few years increasing attention has been devoted to the development of infant schools on the lines of awakening a larger sense of responsibility amongst the young children by giving them a greater measure of freedom. It is recognised by modern educationists that freedom coupled with responsibility lies at the root of all true education.

A school clinic, under the direction of Lecturers in Education from the Training College, was opened in the metropolis during 1918. The object of this institution is to examine and to suggest suitable treatment for children reported by their teachers as shewing special disabilities for school work.

During 1917 and 1918 the provisions of the Public Instruction (Amendment) Act of 1916 were found to have exercised a marked influence on school attendance, and in many schools the average exceeded 90 per cent. of the effective enrolment. The average for all schools in 1919 was about 81 per cent., but abnormal conditions as to sickness were responsible for very small returns from many schools.

Arrangements were made during the year 1917 for the teaching of Japanese in selected High Schools, and in 1918, classes were begun at North Sydney and Fort-street Boys' High Schools.

It has been found that a large proportion of children leave school at the age of fourteen years or thereabouts. As in other countries, it is realized in New South Wales

that this removal from educational guidance at the very time when such formative influences are so necessary is against the best interests of the children and the State, and it is intended to submit proposals to Parliament for continuous training to an extent which will give more adequate preparation for the responsibilities of adult life.

(ii) *Victoria.* Under the Amending Education Act of 1910 it is provided that every child must attend school for the full period of eight years between 6 and 14, unless he be given a certificate of education at 13. The schools are open on an average 225 days in each year, and require attendance on all these days, unless reasonable excuse is forthcoming. Provision is made for the mentally deficient. The primary curriculum divides the school life into eight grades, so that a child entering at six years of age should have completed the full course by the time he reaches his fourteenth year. After completion of the elementary school course, the pupil may go on to the Evening Continuation Schools, Higher Elementary Schools, District High Schools, or the Trade Schools. Special schools for feeble-minded children have been established in the metropolis, and an "open air" school for delicate children is in operation at Blackburn. There is also a special school for epileptics at Clayton. Highly encouraging results have been obtained at all these institutions. A Council of Public Education has been appointed to advise on educational matters generally, and particularly in regard to co-ordination. Examinations are held throughout the State for the certificate of merit and the qualifying certificate. The former is granted to pupils who, under prescribed conditions, reach a satisfactory standard in subjects prescribed for Grade VIII., while the latter is awarded to pupils who reach a satisfactory standard in Grade VI. Possession of this certificate enables the holder to enter upon the work of the Higher Elementary or the District High School. Acting on the advice of the Council of Education, the Melbourne University has established a Schools Board. The function of this body is to consider all questions relating to school studies and the inspection and examination of schools. In addition to University representation, there are also on the Board representatives of the Department of Education, the registered Secondary Schools, and the business interests of the community. Being with wide powers, this Board must of necessity be the chief guiding factor in the development of education in Victoria. During the year 1915 a considerable amount of attention was devoted to the organisation of the elementary schools, especially in connexion with the question of retardation, and in regard to the teaching of infants. It is found that the greater flexibility in organisation and system of promotions, coupled with special methods of dealing with backward pupils, tends to lower considerably the retardation percentage. The institution of the uniform school year, the greater powers conferred on the head teachers in regard to the promotion of scholars, the making of the inspector an advisory rather than an examining officer, and the better provision for the practical training of the junior teachers have all been fraught with excellent results. During recent years methods of training teachers have been considerably improved. Formerly there was only one course leading to the trained teacher's certificate. At present four courses are provided—primary, secondary, infant, and short course for teachers of rural schools.

(iii) *Queensland.* The Amending Act of 1910 introduced several new features into the educational system of Queensland, chief amongst them being—(*a*) employment of proceeds of sales of land and other school property for school purposes, instead of paying them into Consolidated Revenue; (*b*) abolition of local contributions; (*c*) provision of scheme of school certificates to assist in co-ordination of various branches of the system; (*d*) establishment of compulsory continuation classes; (*e*) compulsory medical and dental examination; (*f*) raising the compulsory age to 14 years instead of 12 years; (*g*) provision for compulsory attendance on every day on which the school is open. The last-mentioned provision has already produced good results in regard to improved attendance. The organisation of the general scheme of education is being systematically developed. State High Schools were inaugurated in February, 1912, and a more liberal scheme of scholarships to secondary schools came into force in 1913, while further amendments were made in 1914 and 1915. A Teachers' Training College has been established, and greater attention is being given to the development of technical education. Methods of instruction have been brought into consonance with the latest developments under the new syllabus adopted in 1914. During this year also the medical and dental inspection of State School children were considerably extended.

(iv) *South Australia.* One of the chief events in educational development in South Australia in 1911 was the provision of Evening Continuation Schools, intended to help those who cannot afford to attend the Higher Day Schools. The State has also come into line with the other States in the matter of medical supervision of school children, and a medical officer and two trained nurses have been appointed. The changes introduced at the Teachers' Training College have proved very satisfactory, and the academic teaching at the University is now supplemented by a systematic pedagogic instruction for all classes of teachers. A course of six months' instruction and training for teachers of small schools was introduced in 1913, and has proved of great value. In 1913 the principle was adopted of simultaneous examination of the schools, and granting to teachers the authority to make the promotions of their scholars. An Act to consolidate and amend the law relating to Public Instruction was assented to on the 23rd December, 1915. Under the Amending Act of 1916 all Lutheran Schools were taken over by the State. A Superintendent of Technical Education was appointed in 1916. The new scheme of classification of schools and teachers, which came into operation in 1919, removes previously existing causes of dissatisfaction. In future, schools will be graded according to average annual attendance, and the remuneration of the teacher will be in accordance therewith. Provision has also been made for a more satisfactory scheme of promotion for teachers.

(v) *Western Australia.* During 1912 the curriculum of the Primary Schools was remodelled in order to bring it into line with the most up-to-date principles. The work was lightened in directions where experience showed there was overloading, and efforts were particularly directed toward the removal of the abstract and to the development of the imaginative and constructive throughout all grades. Greater freedom was given for experiment by the teacher, and it is recognised that considerable improvement has resulted. Montessori principles are being increasingly adopted in the teaching of the youngest children. Constructive work is receiving greater attention in all departments, and encouragement is given to original or research work of an elementary character. Four special courses—commercial, industrial, domestic, and professional—have been established at the central schools. These schools are practically day continuation schools designed to carry on the education of boys and girls beyond the primary stage. Continued efforts are being made in the direction of bringing about a closer correlation between primary and secondary education. The Modern School at Perth was opened in 1911, and in June, 1914, a Goldfields High School was opened at Kalgoorlie. District High Schools are in operation at Geraldton, Albany, Bunbury and Northam, and it is proposed to establish additional schools at the larger country centres, and in the meantime to grant scholarships at the existing High Schools to country children. Continuation classes were held at twenty centres in 1919, with an enrolment of 2,827. Certificates granted to successful students entitle the holder to advanced tuition at the Technical College. During 1917 a medical officer for schools was appointed under the Public Health Department. Legislation passed in 1919 made compulsory the education of blind, deaf and dumb children either at home or in special institutions.

(vi) *Tasmania.* During the last few years educational effort in Tasmania has been directed to the development on modern lines of the primary system, the foundation of secondary schools, and the provision of a satisfactory system of training for teachers. Kindergartens, Montessori Schools, and Model Country Schools have been established as adjuncts to the training system, and the courses have been remodelled with a view to providing trained teachers for secondary as well as for primary work. At the High Schools, secondary, commercial, and industrial courses have been established. School hygiene has received especial attention, doctors and nurses have been appointed, and two dental clinics have been established. During the year 1918, regulations were framed with the object of establishing separate infant departments under a trained mistress. Four have already been established and it is proposed to open four additional schools of this type. Provision has been made for an extension of the system of teaching by correspondence for children in isolated districts.

(vii) *Northern Territory.* Although the number of children of school age in the Territory is small, nevertheless ample provision has been made by the Commonwealth Government for their education. State schools are in operation at Darwin, Parap, Pine Creek, Alice Springs, and Eumungalan. There is also a school for aboriginal

and half-caste children at Kahlin Compound, Darwin. A satisfactory standard is maintained at the schools, but progress is somewhat retarded by irregular attendance. Continuation classes are available at Darwin for cadets in Government employment and for others.

(viii) *Present Position of State Education in Australia.* Throughout Australia primary education is compulsory and free of charge, while there exists in most of the States a liberal provision of scholarships and bursaries to the Higher State Schools, to the Secondary Schools, and to the Universities. Provided that the requisite standard is reached, it is, of course, permissible for children to receive home tuition, or to attend so-called private schools. Considerable interest is taken in educational matters by the people of the Commonwealth, and within recent years several of the States have sent qualified representatives to inspect and report on the methods adopted in the chief countries of Europe and America. The reports of these Commissioners, especially those of New South Wales, have been widely studied, and various improvements have been made in accordance with their recommendations. The orientation, lighting, and ventilation of school buildings are being modernised. In all of the States periodical medical inspection of the children is in force. (A detailed statement of the work being done in this direction will be found in the chapter dealing with Public Hygiene.) Methods of training teachers are now better developed, and although the "pupil teacher" system with its effects have not been wholly eliminated, it appears to be gradually vanishing. (The methods adopted in the various States for the selection and training of teachers are described in some detail in § 2, 10, hereinafter.) There has been a wider employment of kindergarten principles in the early stages, and the more or less purely abstract teaching of the older days has been largely replaced by concrete methods. Such subjects as nature study, manual training, music, and drawing have received a general impetus. Greater attention has been given to the scientific classification of children. Moreover, as will be seen from the above, and from § 2, 7, the State Education Departments are increasing their activities in the direction of secondary education. Lastly, the system of inspection has been considerably remodelled. Under the old system, the inspector was little more than an examining officer, but, under the present régime, the primary duty of this officer consists in guiding and directing the teaching in accordance with approved methods. [See also § 6, Technical Education.]

(ix) *Co-ordination of Educational Activities.* As pointed out already, the educational system of New South Wales may now be considered as a more or less homogeneous entity, the various stages succeeding one another by logical gradation from kindergarten to university. In the other States development is proceeding on somewhat similar lines, although in varying degree. [See also § 1, para. 2 *supra.*]

(x) *Educational Conferences.* In May, 1916, the first Conference of Directors of Education in the States of the Commonwealth was held at Adelaide. Amongst important matters discussed thereat may be mentioned :—(*a*) *Education Reports* (*Departmental*). In regard to these a decision was arrived at respecting the general principles which should govern the preparation of future reports in order to ensure uniformity so far as the compilation and presentation of statistics relating to enrolment, attendance, and finance are concerned. (*b*) *Raising School-age Limit.* In view of the circumstance that educational expenditure has, up till now, been largely wasted owing to school attendance ceasing at the age of 14 in the case of so many children, it was resolved that legislation is desirable providing for continuous education up to the age of 16, and that attendance be made compulsory except where special exemption could be granted on the ground of educational fitness. (*c*) *Schools for Defectives.* At present New South Wales and Victoria have a school each of this type, but it was agreed that such schools ought to be provided where required. (*d*) *Other Special Schools.* Each State is making experiments in regard to the provision of new types of schools giving industrial and secondary instruction, and arrangements were made for the exchange of detailed information in regard to their working. (*e*) *Sex Physiology.* The Conference was opposed to the introduction of special teaching on this subject, and it was affirmed that efforts should be directed towards excluding all thought and talk about sex matters from the schools. It was agreed, however, that the Departments should prepare a special leaflet setting forth the duties of parents in this direction. The second Conference was held in Melbourne in June, 1918.

§ 2. State Schools.

1. **Introductory.**—The State Schools, or, as they are sometimes termed, the "public" schools, of the Commonwealth comprise all schools directly under State control, in contradistinction to the so-called "private" schools, the bulk of which, through privately managed, nevertheless cater for all classes of the community. Separate information regarding Technical Education is given in § 6.

2. **Enrolment and Attendance.**—The following table shews the number of State Schools, together with the teachers employed and the enrolment and "average attendance" in each State during the year 1919:—

STATE SCHOOLS, TEACHERS, AND SCHOLARS, 1919.

(COMMONWEALTH.)

State or Territory.	Schools.	Teachers.(a)	Scholars Enrolled.	Average Attendance.
New South Wales(b)	3,124	8,845	288,965	212,874
Victoria	2,349	6,872	222,000(c)	173,783
Queensland	1,574	4,194	113,070	92,569
South Australia	928	2,242	75,681	59,714
Western Australia	665	1,662	51,776	43,863
Tasmania	462	1,072	30,522	25,081
Northern Territory	5	9	303	185
Commonwealth	9,107	24,896	782,317	608,069

(a) Exclusive of sewing mistresses. (b) Including Federal Territory. (c) Estimated.

Unfortunately, the schemes of enrolment and of the computation of "average attendance" are not identical in each State, so that the comparisons are imperfect.

The figures for average attendance in New South Wales shew a considerable falling off as compared with the previous year, the decrease being due to the epidemic of influenza during the first half of 1919.

The enrolment and average attendance at the State Schools in the Commonwealth are given below for the years 1891, 1901, 1911, and for each year of the period 1915 to 1919:—

ENROLMENT AND ATTENDANCE AT STATE SCHOOLS, 1891 TO 1919.

(COMMONWEALTH.)

Year.	Total Population (a)	Enrolment.	Average Attendance.	Year.	Total Population (a)	Enrolment.	Average Attendance.
1891 ..	3,241	561,153	350,773	1916 ..	4,875	751,126	569,306
1901 ..	3,825	638,478	450,246	1917 ..	4,935	764,980	600,089
1911 ..	4,569	638,850	463,799	1918 ..	5,030	779,687	612,474
1915 ..	4,932	732,464	557,962	1919 ..	5,247	782,317	608,069

(a) In thousands.

As explained above, the diminished attendance in 1919 was due to the heavy fall in the New South Wales figures consequent on the epidemic of influenza.

3. **Schools in the Federal Capital Area.**—During the year 1919 thirteen State Schools were in operation in the Federal Territory (Yass-Canberra). The pupils enrolled numbered 373 and the average attendance 271. Cost of upkeep in 1919 amounted to £3,416. By arrangement with the Federal Government these schools are conducted by the New South Wales Education Department on the same lines as the ordinary State Schools, the Department being recouped for expenditure.

4. **Centralisation of Schools.**—The question of centralisation of schools adopted so successfully in America and Canada has received some attention in the Commonwealth, and particularly in New South Wales. It is recognised that a single adequately-staffed and well-equipped central institution can give more efficient teaching than a congeries of small scattered schools in the hands of less highly trained teachers, and the small schools in some districts were therefore closed and the children conveyed to the central institution. The principle was first adopted in New South Wales in 1904, when the conveyance of pupils was authorized in the case of 12 schools, and was later on extended to other States.

5. **Education in Sparsely-settled Districts.**—It has always been the aim of the State to carry the benefits of education into the remotest and most sparsely-settled districts. This is effected in various ways. (i) By the establishment of Provisional Schools, *i.e.*, small schools in which the attendance does not amount to more than about a dozen pupils, these institutions merging into the ordinary public school list when the attendance exceeds the minimum. (ii) When there are not enough children to form a provisional school, what are known as Half-time Schools are formed, the teacher visiting them on alternate days. (iii) In still more sparsely-peopled districts, an itinerant teacher goes from house to house within a certain radius. Thus, in Queensland during 1919 the 14 itinerant teachers covered 536,000 square miles of country and travelled 67,089 miles to visit 1,778 children. In this State also the Education Department has established what are known as Saturday Schools, in which small groups of children in outlying districts are visited by the nearest teacher on Saturdays and receive the benefit of several hours' instruction. These schools, of which there are now ten, have been warmly welcomed in the districts in which they are established, inasmuch as under this system the children "outback" receive a greater amount of instruction than is possible under the system of itinerant teachers. Provision has been made for a vocational "top" to be established at schools in important distributing centres of inland pastoral areas in Queensland and at Longreach, Barcaldine, Charleville, Mitchell and Geham special classes receive instruction in manual work, commercial work, and domestic economy. Itinerant teachers capable of imparting instruction in domestic and manual work have also been appointed to visit parents and children at various localities in the Central District. During 1919, the Education Department in Western Australia disbursed £10,741 in "driving grants," *i.e.*, sums of money granted to parents whose homes are over three miles from the nearest schools, and who arrange to have their children driven in. In New South Wales, Victoria, South Australia, Western Australia and Tasmania parents in the thinly-peopled areas are also allowed to club together and build a school, which receives aid from the Government in the form of a yearly subsidy and grant of school material. In some cases the Department also provides the building. During 1919 subsidy was paid to 575 schools in New South Wales. (iv) An experiment on the part of New South Wales, the result of which was awaited with some interest, was the establishment in 1908 of a "Travelling" School. A van was provided in which the teacher travelled, carrying with him a tent for himself and one to be used as a school, together with such books and apparatus as are required in a Primary School. So far very satisfactory results have been attained. Two additional schools of this nature were established in 1914. (v) There are also railway camp schools in operation on the sites of extensive railway works. In South Australia, attractive portable schools have been designed to meet the needs of new districts and settlements of a temporary character.

Regulations were framed in Tasmania during 1912, providing for the subsidising of private teachers at a rate not exceeding £5 per pupil in districts too remote or sparsely settled to warrant the establishment of an ordinary Provisional School. The schools of this nature operating in 1919 numbered 52, with an enrolment of 551 scholars. During the year the department also paid for the conveyance of 256 children to schools by boat, vehicle, or train.

New South Wales, Victoria, South Australia, Western Australia, and Tasmania provide for education, by correspondence, of children in isolated districts. In South Australia it is stated that the children of one family are 400 miles from the nearest school. Another family of four are 320 miles distant from a school, and several families live along the camel tracks in the far north. The Port Augusta School supervises the work of twelve children living along the East-West railway line.

6. *Evening Schools.*—Evening Public Schools have been in existence for many years in some of the States, but their progress has been uncertain. In New South Wales the 42 Evening Continuation Schools had an average attendance in 1919 of 1,399. It is pointed out by the Inspector of these schools that future extension depends on the introduction of some form of compulsory attendance. In Victoria there was only one night school in operation for elementary work during the year, the average attendance being 31. It is stated that future developments in evening instruction will be in the direction of continuation classes, of which there were at latest available date six, with an average attendance of 91. Western Australia has evening continuation classes in the chief centres; the enrolment in 1919 numbered 2,827. Evening Continuation Schools have been established under regulation in South Australia, and are intended principally to help the working boy to improve his general education and to add to the store of knowledge most useful in his present work.

7. *Higher State Schools.*—(i) In *New South Wales*, public schools which provided advanced courses of instruction for two years for pupils who have completed the primary course were classed as *Superior Schools*. These were reorganised in 1913 as Day Continuation Schools, and divided into Superior Commercial Schools, Superior Junior Technical Schools, and Superior Domestic Schools for Girls. During 1919 there were 95 schools of this type in operation, of which 25 were in the Commercial group, 24 in the Junior Technical, and 46 in the Domestic group, with an average attendance of 5,239 in the sixth and seventh classes. It is believed, however, that greater efficiency could be produced by reducing the number of these schools and establishing Central "Superior Public Schools" instead. Provision has also been made for the more advanced education of children in country centres by the establishment of 18 District Schools. These schools are specially staffed, and undertake the work of preparing students for admission to the training colleges. There are also 23 *High Schools* in the State. These had an enrolment in 1919 of 6,723, with an average attendance of 5,132. To meet the wishes of representatives of the registered Secondary Schools, the syllabus of the High Schools was amended in 1913, and now offers such a wide range of choice in the selection of subjects that there is no possibility of producing a merely stereotyped uniformity of study. Four "Intermediate" High Schools have been established to meet the growing demand for High School education in the metropolis, and others will be provided during the next few years in the city and in country centres. The average attendance at these schools in 1919 was 817. During 1919 further provision was made for higher education by the institution of a composite course of instruction at various country schools where only a small number of pupils can be grouped. The course includes practically all secondary subjects and has been extended to about 45 schools. Hostels have been provided in connexion with the High Schools at Albury, Goulburn, Hay, East and West Maitland. In accordance with Departmental regulations liberal provision is made for scholarships and bursaries to the higher State Schools. Under the provisions of the University Amendment Act of 1912, 200 exhibitions were awarded in 1919 to successful students at the leaving certificate examinations, and 119 of these were given to pupils attending the State Schools, and 88 to students of registered secondary schools.

The Sydney Grammar School (not a "State" School in the ordinary acceptation of the term), which receives a State endowment of £1,500 a year, had, in 1919, a quarterly enrolment of 625 pupils, and an average attendance of 564.

During 1917 the State School of Aviation at Richmond was transferred to the control of the Education Department. The school served a military purpose during the war, but it is hoped that it will henceforward prove of great commercial value to the State.

(ii) In *Victoria*, action was taken in January, 1912, to give effect to the provisions of the Education Act of 1910, with regard to the decentralisation of the system of secondary education. Twenty-four Higher Elementary and 28 District High Schools have

been established, and, to obviate congestion at the High Schools, Higher Elementary Classes are carried on at six "Central" Schools. The enrolment on the 1st January, 1919, at the Higher Elementary Schools was 1,932, of whom 977 were girls, at the District High Schools 5,947, of whom 2,868 were girls, while 495 boys and 511 girls were receiving secondary teaching in the Central Schools. The qualifications for admission to the High Schools and Higher Elementary Schools are that pupils shall be not less than 12 years of age, shall possess the qualifying certificate or its equivalent, and that their parents shall undertake that the children will remain at school for four years. For the first two years there is a common course for all pupils, thereafter replaced by four special courses :—(1) A preparatory professional course for pupils preparing to proceed to the University, to enter the teaching profession, or to gain a sound general education; (2) an agricultural course to be taken in Agricultural High Schools; (3) a commercial course; and (4) a domestic arts course for girls. Parallel with these courses an industrial course has been developed for pupils who intend to enter upon some form of industrial occupation.

The demand for places in the metropolitan High Schools is in excess of the available accommodation, and although the "Central" Schools, already referred to, have to some extent relieved the congestion, increased provision will shortly be necessary.

Junior Technical Schools have been established apart from the High Schools in Melbourne, Ballarat, Bendigo, and Geelong, and there are schools also at Glenferrie, Collingwood, Sunshine, and Warrnambool.

Schools of Domestic Arts have been established—three in Melbourne, one in Ballarat, and one in Bendigo. At those institutions, in addition to continuing their general education, the girls receive special instruction in cookery, needlework, and various home duties. A modified course in domestic arts is given to senior pupils in Maryborough and Castlemaine.

Scholarships granted by the Department are as follows :—(*a*) One hundred junior, tenable for four years at a District High School or approved Secondary School, with allowance of £26 per annum for board where required; (*b*) Forty senior, tenable four to six years, with allowance of £40 towards expense of course at University; (*c*) Fifty junior technical, giving free tuition for two years at a Junior Technical or other approved school, and, in certain cases, board allowance of £26 per annum; (*d*) Fifty-five senior technical, giving free tuition for approved courses at Technical schools, with £30 allowance for day students, and £10 for night students; (*e*) Sixty teaching, similar in other respects to junior; (*f*) Twenty nominated courses, giving four to six years' free tuition in agriculture, mining, or veterinary science at the University, with allowance in certain cases of £26 per annum.

Hostels for the accommodation of students have been provided by the local School Council or in connexion with religious denominations at Ararat, Leongatha, and Sale, but it is stated that the attendance at Secondary Schools in country towns generally suffers from the lack of facilities for boarding.

(iii) Prior to the year 1912, *Queensland* did not possess any distinctly Secondary Schools under State control, but in February of that year High Schools were opened at Warwick, Gympie, Bundaberg, Mount Morgan, Mackay, and Charters Towers. Tuition at these schools is free, but students must pass a qualifying entrance examination. Three courses of study, General, Commercial, and Domestic, are provided. The General Course will lead up to the University, and students will be able to matriculate from the High Schools. In 1917 a new High School was opened at Gatton. High Schools ranking in all respects with those mentioned are also conducted at Brisbane Central Technical College and at the Technical Colleges at Toowoomba and Rockhampton. In smaller centres where an average of not less than 25 qualified pupils can be obtained, secondary tuition is provided at existing State Schools, and this has been arranged for at Brisbane Central (boys), Brisbane Central (girls and infants), Herberton, Childers, Dalby, Pittsworth, Roma, Southport, Cairns, Wynnum Central, and Emerald. The enrolment at High Schools in 1919 was 1,716, and the daily attendance 1,111. There are moreover, ten Grammar Schools—six for boys and four for girls—each of which is subsidised by the State to the extent of £750 per annum, and in addition receives a payment of £250 per annum for providing five scholarships for State scholars. The

enrolment at the Grammar Schools in 1919 was 1,900, and the average attendance 1,478. Since the year 1909 these schools have been regularly examined by the Inspector-General of the Education Department.

Under the amended scheme of scholarships to Secondary Schools which came into force in 1914, all candidates who gained 50 per cent. of marks at the previous December examination were eligible for free scholarships tenable for three years at an approved Secondary School. Provision was made for board allowance of £30 per annum where necessary, and of £12 where the holder lived at home. In 1915 the tenure was altered to two years, with the proviso that, should the holder at the end of that period obtain an approved pass at the University Junior Examination, an extension scholarship of two years was granted, and, in addition, an extension at the end of the fourth year where an approved pass at the Senior University Examination was obtained. The extension scheme came into force in 1917, when 93 boys and 45 girls gained extension for a third and fourth year, the corresponding numbers in 1919 being 157 boys and 89 girls.

As a result of the 1919 examinations, held in April, scholarships (extended to two years and six months) were awarded to 852 boys and 843 girls. Of the successful candidates 224 boys and 176 girls were granted the allowance of £12 per annum, and 95 boys and 86 girls received the allowance of £30.

Prior to the establishment of the Queensland University, three exhibitions per annum to approved Universities were granted. These have been replaced by twenty scholarships to the local University. Each scholarship is tenable for three years, and carries an allowance of £26 per annum if the holder lives at home and attends the University, or £52 per annum board allowance where necessary. In addition to these "open" scholarships, twenty "teacher" scholarships are granted to students who undertake to enter the teaching profession. These carry an allowance of £66 where the students live away from home, and £39 to those who live at home.

(iv) *South Australia.* Including the Adelaide High School, there were altogether twenty-one High Schools open in South Australia in 1919, with an enrolment of 2,591 students, and a staff of 128 teachers. In addition to giving secondary education, these institutions form a valuable source from which the Department can draw a supply of young teachers. Under existing regulations provision is made for the following scholarships :—(i) Eight public exhibitions open to boys and girls who have been bona fide residents of South Australia for two years prior to the competitive examination. The exhibitions are tenable for three years at an approved school or college, carry free tuition and books, and an allowance of £22 per annum when the holder lives away from home. (ii) Forty exhibitions, tenable for three years at an approved school or college are open to competition by children under 13 years of age in attendance at State Primary Schools. (iii) Eight senior exhibitions, worth £40 per annum, and four of the value of £20, are tenable at the Adelaide High School or other approved Secondary School, and are open to pupils of any Secondary School. (iv) Twelve junior exhibitions, eight of £40 and four of £20, tenable for two years at any approved Secondary School, are reserved for pupils of Secondary Schools within a radius of 10 miles of the General Post Office, Adelaide. (v) Twelve Government bursaries, of which six are reserved for pupils of the High Schools. These are tenable at the University, and the holder receives £20 per annum and free tuition. (vi) The Government provides £180 per annum to assist students who are unable to attend the University during the day. Each studentship is limited to £10 for science students, and £7 for arts students.

(v) *Western Australia.* In 1919, there were two schools providing a course up to the leaving certificate standard—the Perth Modern School and the Eastern Goldfields High School—and four District High Schools, at Northam, Geraldton, Bunbury and Albany, providing a three years' course up to the junior certificate standard, although two of them have small upper classes working for the leaving certificate. In addition, the eight Central Schools have professional courses with a curriculum equal to that of the District High Schools. The Perth Modern School and the Eastern Goldfields High School had an enrolment in 1919 of 376 and 180 students respectively. Extension of the opportunity to obtain secondary education in country districts has been greatly appreciated, and the enrolments at the four District High Schools varied from 84 at Geraldton to 161 at Bunbury. The Science Courses in these

schools are designed to aid in the practical study of agriculture. Entrants to State secondary schools must have passed an examination identical with that for Secondary School scholarships, and boarding allowance up to £30 per annum is provided where necessary. Continuation classes were inaugurated in 1911, and were attended at 20 centres in 1919 by about 2,800 pupils. The classes are intended to provide some measure of higher education to those who leave school as soon as they reach the compulsory age of 14 years. Admission to these classes is free, but pupils must attend regularly three evenings a week. Evening Schools are held in various parts of the State, but the work carried on is mainly primary. Junior and senior exhibitions were abolished in 1914 and provision made for 10 University exhibitions, each tenable for three years at the University of Western Australia, and valued at £40 per annum for students living at home and £60 in the case of those living away from home. Fifty scholarships tenable for three years (with possibility of extension to five years) at approved Secondary Schools are annually offered for boys and girls attending Government or other efficient schools. Ten carry an allowance of £20 per annum, and the remainder entitle the holders to receive a grant for books and travelling expenses. Boarding allowance up to £30 per annum may also be granted where necessary. Thirty-four bursaries of the value of £5 each tenable for two years were also granted in 1919. Scholarships to enable children from country districts to attend at District High Schools or the Narrogin School of Agriculture were inaugurated in 1917. Only those children who must live away from home are eligible, and the tenure may in some cases be extended to five years. The scholarships for the High Schools carry an allowance of £30 per annum, and at Narrogin of £22 per annum. During 1919, 40 District High School scholarships, and 5 tenable at the Narrogin School of Agriculture were awarded. Thirteen scholarships also were awarded in 1919 to children of fallen or disabled soldiers.

(vi) *Tasmania.* Up to the year 1912 the Department confined its efforts to the provision of primary education for the school children in Tasmania. In 1911, however, super-primary classes were formed in the larger schools, with an enrolment in 1911 of 200, and in 1912 of 400 pupils. It was recognised, however, that the previously existing scheme of scholarships and exhibitions was inadequate to meet the demands for higher education. High Schools were therefore opened in January, 1913, at Hobart and Launceston, and intermediate High Schools were opened in 1915 at West Devonport and Burnie. In 1919 the school at Devonport was given the status of a full time High School. These provide for five classes of pupils—(i) Those who desire to become teachers; (ii) University students; (iii) Commercial; (iv) Mechanics; (v) Home duties (girls). The enrolment in 1919 was 1,023. It is proposed to grant a leaving certificate at the end of a four years' course. The Bursaries Act of 1915 provides for 30 junior and 20 senior bursaries tenable for two years at an approved State School or registered Secondary School. They are valued at £2 per annum for a State School and £12 at a Secondary School, in addition to satisfactory boarding and travelling allowance where required. Four-fifths of the bursaries are awarded to country children. The Tasmanian Education Department scholarship is open for competition to High School pupils under the age of 19 years. The scholarship is valued at £20 per annum, with an allowance of £40 if the student lives away from home while attending the approved University course. A Veterinary Science Scholarship was established in 1918, for competition amongst boys under 19 years of age. It is tenable for one year at the University of Tasmania (value £20 or £60), and at either the University of Melbourne or Sydney for the three succeeding years (value £120 per annum). During 1919 the Board awarded 11 junior city, 40 junior country, 6 senior city, and 13 senior country bursaries.

8. Agricultural Training in State Schools.—The question of agricultural training in ordinary schools has received considerable attention in *New South Wales.* In 1905 a teacher of school agriculture was appointed to visit schools and districts for the purpose of giving instruction to teachers and scholars in the subject, the officer selected possessing the qualifications of a thorough acquaintance with agricultural work as well as school methods. The Education Department makes grants of seeds of various kinds to schools having gardens, and in some instances has installed windmill plants to provide an adequate water supply. Under the direction of a capable head master, a college has also been opened at Hurlstone, near Sydney, at which practical lessons are given in elementary agriculture, and the institution also serves as a stepping-stone to the

Hawkesbury Agricultural College. Scholarships are available to students of the Hurlstone Agricultural High School as it is now called, and these scholarships entitle the holder to a two years' free course at the Hawkesbury institution, with a grant of £1 10s. per annum for text books. The Department has also organised Rural Camp Schools for the purpose of giving teachers and scholars first hand knowledge of country industries.

The subject of Agricultural Colleges and Experimental Farms is dealt with in the section relating to Agriculture. (See page 302.)

In *Victoria*, what are termed Agricultural High Schools have been established at Ballarat, Colac, Leongatha, Mansfield, Mildura, Sale, Shepparton, Wangaratta, Warragul, and Warrnambool. Pupils must be at least fourteen years of age, and have passed beyond the curriculum of the elementary school, or else be able to afford satisfactory proof that they are qualified to profit by the instruction offered. The schools are practically secondary schools with an agricultural bias, and form a link between the rural school and the agricultural college. They are also used as a preliminary stage in the education of boys and girls who wish to become teachers and eventually graduate in the State Training College and the University. At some of the schools short courses in agriculture have been instituted for farmers' sons who have left school. A local council is appointed for each school, and exercises a general oversight over its operations. The experimental plots at these schools have aroused much interest among the farmers from the surrounding districts. A Supervisor of Agriculture reports and gives advice on the teaching of agriculture in the State Schools. A fair number of teachers have gained diplomas in agriculture, and are capable of giving practical instruction at the High Schools. Schools of Agriculture are conducted by the Agricultural Department at the State Research Farm, Werribee. Teachers in the wheat-growing districts are also instructed for short periods by the organizing inspector of agriculture at the University, and their services are utilised as leaders or group supervisors in their districts. The elementary principles of agriculture are taught in a large number of State Schools. Progress has been made in the direction of establishing agricultural clubs and home-project organizations in connexion with the schools. A Horticultural Society has been established, and there are 1,221 schools in affiliation, while practical help in school gardening is afforded by the Departmental supervisor. The Society has a nursery and distributing centre for plants and seeds at Oakleigh, and sub-nurseries have been established at various schools.

In *Queensland* the Government provides a small grant to encourage the study of agriculture, horticulture, and kindred subjects in the State Schools, while a departmental teacher of agriculture visits the schools and gives assistance in agricultural, horticultural, and nature study work. Some excellent experimental work has been carried out at a few of the schools, while gardens have been established wherever circumstances permitted. Short courses of instruction for teachers have been instituted at the Gatton College. A large number of teachers have gained a practical knowledge of milk and cream testing, and the subject is now added to the programme of instruction in several of the dairying districts. At Nambour, a Rural School, the first of its type, was opened early in 1917. In addition to the ordinary subjects of the curriculum this school provides for instruction in farming, fruit growing, dairying, etc., with dressmaking, millinery and cookery for girls, and woodwork, leatherwork and tinsmithing for boys. Training in business methods shorthand and typewriting is also available In view of the success of this institution schools of somewhat similar type have been established at Boonah, Marburg, Gracemere, and Gcham, and one at Home Hill is under construction.

In *South Australia*, the Public Schools' Floral and Industrial Society, founded in 1880, holds annual exhibitions of school work from all parts of the State. In addition, it has for some years undertaken the distribution of flower seeds among school children at a very cheap rate, and has thus fostered the love of horticulture with remarkable success. A special instructor has been appointed to give assistance to teachers desirous of making their school gardens aid in nature study work. Aid is given by personal visits as well as by correspondence and the holding of vacation Summer Schools. Teachers in training receive instruction in Nature knowledge and the art of conducting Nature Studies with children. A seed wheat competition amongst school children inaugurated in 1911 proved very successful, a second, which was commenced in 1916, will conclude in 1920,

and a third in 1921. Two of the competitors who have entered on the work of wheat breeding produced wheat of such quality that they were unable to supply the orders for seed grain received from South Australia, as well as from other States.

In *Western Australia* an advisory teacher of nature study visits the schools and gives advice in regard to proper methods in horticulture and experimental agricultural work. The number and usefulness of the gardens and experimental plots attached to State Schools shew marked improvement each year. Early in 1914 a school was opened on the Narrogin State Farm. The students are taken directly from the primary schools, and the course of instruction lasts for two years. On its completion students are qualified to enter on the diploma course at the University.

In *Tasmania* the organising teacher of nature study visits and advises the teachers at the State Schools, and also gives addresses and model lessons at the schools of instruction.

9. **Teachers in State Schools.**—The distribution of the teaching staff in the State Schools during the year 1919, including teachers of needlework, was as follows :—

TEACHING STAFF IN STATE SCHOOLS, 1919.

(COMMONWEALTH.)

State.	Principal Teachers.		Assistants.		Pupil or Junior Teachers.		Sewing Mistresses.	Total.		
	Males.	Fem.	Males.	Fem.	Males.	Fem.		Males.	Fem.	Total.
New South Wales	2,168	1,186	1,464	3,928	4	95	157	3,636	5,366	9,002
Victoria ..	1,737	1,212	429	1,611	309	1,574	414	2,475	4,811	7,286
Queensland ..	838	785	541	1,306	248	476	..	1,627	2,567	4,194
South Australia ..	387	571	161	696	96	331	100	644	1,707	2,351
Western Australia	329	363	123	664	35	148	57	487	1,232	1,719
Tasmania ..	167	320	94	284	22	185	3	283	792	1,075
Northern Territory	2	3	..	2	..	2	..	2	7	9
Commonwealth ..	5,628	4,440	2,812	8,491	714	2,811	740	9,154	16,482	25,636

The figures for assistants include students in training.

It will be observed that there is a fairly large number of junior teachers, or pupil teachers, as they are called in some of the States. The pupil teachers will, however, in time disappear, and their places will be filled by young people who have undergone a course of training in schools specially provided for the purpose. Allusion to the methods of training will be found in the next paragraph.

In New South Wales attention has been drawn to the difficulty of securing an adequate supply of teachers, particularly male teachers for small schools in out-back districts.

10. **Training Colleges.**—The development of the training systems of the various States has been alluded to at some length in earlier issues of the Year-Book. The present position is as follows :—

(i) *New South Wales.* During 1919, the total number of students in training was 786, of whom 459 were taking the full course at the College, while 327 were taking the twelve months' course at Hereford House. Practically all accessible metropolitan schools are used as practice schools for giving training college students opportunity to acquire practical skill in teaching. At the college, a complete set of Montessori apparatus has been prepared for demonstration work on the Montessori principles, and one of the College staff was a few years ago sent to Italy in order to gain first-hand knowledge of the possibilities of the scheme. Opportunities are also afforded to other members of the teaching staff to visit foreign countries on study leave. The Principal of the Training College is also Professor of Education at the Sydney University. A new Teachers' College within the University grounds is in course of erection, and portion of the building was occupied in 1919. Up to the year 1913 the limits of accommodation at the Teachers' College were responsible for the employment of a number

of untrained junior assistants, but it is now provided that no teacher enters the service without at least six months' professional training. Schools of instruction for teachers are held each year, the subjects chosen being military drill, swimming, physical training, first-aid work, manual training work, etc., and lectures are given to teachers in rural districts by members of the Teachers' College staff. Hostels for students in training and for the accommodation of High School pupils have been established at various centres in the State.

(ii) *Victoria.* During recent years the educational and professional attainments of the general body of teachers in Victoria have steadily improved. Prior to the establishment of the High Schools, the pupil or junior teachers were recruited from the ranks of those who had obtained the Merit Certificate in the eighth grade of the elementary schools, and the acquirement of the necessary literary qualifications for promotion was greatly hindered by the circumstance that they were engaged in teaching for the greater portion of the day. Under present conditions, candidates spend three or four years in a High School exclusively in study, and consequently enter on their professional duties with a better mental and physical equipment. On receiving promotion in rural schools as sixth grade teachers, they may join the correspondence classes of the Melbourne High School and receive tuition for the higher examinations. At present about 600 rural teachers are on the correspondence class rolls, while evening and Saturday classes for junior teachers are also held at the school. A number of High School pupils after serving as junior teachers for a year are awarded studentships at the Training College, and competition has been so keen that it has been found possible to exact the standard of the Senior Public Examination for these studentships. The present Training College dates back to 1874, but during the retrenchment period, viz., from 1893 to 1900, it was closed. The institution was reopened in February, 1900, with an enrolment of fifty-seven students. During the year 1919, 349 teachers, some of whom were extra-departmental, were brought into contact with the college work. A Training College Hostel has been established, and a Correspondence class formed for country teachers desirous of qualifying for the Infant Teacher's Certificate. The students at the Hostel receive training in domestic economy. Three city and six country practising schools are attached to the Training College, and four infant rooms with attached kindergartens have been specially equipped for the training of infant teachers. The University High School gives secondary teaching practice to both departmental and private students. A remodelled system of training came into force in 1914, providing, amongst other things, for the alteration of the name "Training College" to "Teachers' College," and for the classification of students into three groups, *i.e.*, those training for secondary teachers' certificate, for sub-primary teachers, and for primary teachers. At the Summer School for infant teachers there was an attendance of 103 in 1919, and 90 country school teachers attended a week's vacation school at the Rural Training School.

Twenty teachers are nominated annually for free attendance at the University lectures for the diploma of education.

The Teachers' College conducts a Correspondence class for women teachers in the country studying for the Infant Teacher's Certificate.

(iii) *Queensland.* In connexion with the Teachers' Training College opened in Brisbane in 1914, the following scheme has been evolved :—Twenty-five special Teacher scholarships to the University, each with a currency of two years, are to be awarded annually. Living allowances at the rate of £52 per annum and £26 per annum respectively are provided, the former being paid to students living away from home. The University is to provide an Education group of subjects, including Logic, Psychology, and Education. Ten of the scholarships may be carried on for a third year, and five for a fourth year. Practical training is entrusted to a Training Master appointed by the Department. Those who attend the two years' course will be appointed to the Primary Schools, and the graduates from the three and four years' course will be available for High Schools and Secondary Schools. Short courses of training have been instituted for teachers to take charge of small schools, and arrangements have been made to allow an approved number of teachers already in charge of such small schools to obtain the benefit of the training. During 1919

there were in training 31 short course students, 11 training for Class II., and 32 University students. In the meantime, young people of both sexes are admitted to the service as pupil teachers at the age of fourteen years, and receive training from the principals of the schools to which they are appointed. The schools for infants at Kangaroo Point and Rockhampton have been specially staffed and equipped for training Kindergarten teachers, and Kindergarten methods have been introduced into most of the larger schools. Teachers of small schools are also greatly helped by the inspectors' practical and theoretical instruction in the various districts, while the Central Technical College gives correspondence lessons to small-school teachers desirous of passing the Class III. examination. Schools of instruction for the untrained teachers of small schools are conducted by the inspectors in their respective districts.

(iv) *South Australia.* During the year 1910 the system of training in force in South Australia was remodelled and improved. Prior to that year students had devoted themselves chiefly to academic studies, but in 1910 provision was made for increased attention to the theory and practice of teaching. Distinct courses of training were established to prepare teachers for work in primary and infant schools, and an advanced course was outlined for those who will become High School teachers. Each of these courses extends over a year. Students in the primary course who shew special ability may be granted a second year's training. The special course for Secondary Schools gives students an opportunity of obtaining the Diploma of Education. Provision was also made for a six months' course of training for teachers of provisional schools. There were 134 students in the Training College in 1919. Most of the students have, in the first instance, had a period of one year's practical monitorship in a State school under the guidance of a head master. This is followed by three years' general education in a High School, and a further year of junior teachership in a primary school under the supervision of a head master, prior to entrance to the Training College. At the Adelaide High School there were 416 students training for teachers during 1919. Altogether over 1,000 students received instruction in 1919 at this institution, which claims to be the largest secondary school in Australia. Practice in teaching is gained by the student teachers at the Observation School, which also provides training for teachers qualifying for appointment to provisional schools. A "model" small school has been established for the purpose of illustrating methods of management for one-teacher schools. A director was appointed in 1917 to give instruction in Montessori methods at the school. A considerable amount of help is given to the teachers of small schools at the periodical "Summer" Schools and "refresher" courses.

(v) *Western Australia.* A Training College for teachers was opened at Claremont in 1902. The original building provided accommodation for sixty students, but extensions were opened in 1908, and the number in training in 1919 was 161. Of these 79 were taking the full course of two years, 57 were taking a twelve months' course, and 25 took the short course of six months. It is intended in future to make the minimum period of training twelve months. About half the full course students attend lectures at the University, and three remained for a third year to complete degree work. Special practising schools have been established for the proper training in teaching and managing the smaller country schools. Three classes of students are admitted to the full course—(i) from State or private secondary schools; (ii) monitors from departmental schools; (iii) ordinary teachers from the departmental schools. The standard of education required on entering is the school-leaving or matriculation certificate, but a special examination is held for candidates possessing neither. The course is both academic and practical, the former being co-ordinated with the University. As a help in the practical work, there is an adjunct school attached to the college, and several practising schools, two of which are for infants only. An advisory teacher visits the small country schools to give practical help and advice. At the Claremont Infants' School a room has been set apart for work on Montessori lines. During 1919, in addition to short courses at the Training College, a school of instruction for teachers of small schools was held at Toodyay. Arrangements have been made for the inspectors to carry out experimental work in the direction of affording opportunities for teachers and children in rural districts to acquire useful information in connexion with nature study, agriculture, and various industrial and art subjects. Two schools of instruction for teachers in cadet training were held in 1919, and these were attended by 31 teachers.

(vi) *Tasmania.* During 1917 the schemes for the training of teachers were recast and grouped in four divisions:—(1) A short course to supply the professional training required for the less important positions in the primary schools and for teachers of the smaller provisional and Sixth Class schools. The course lasts six months. (2) Training of infant teachers. (3) Training for positions in the larger primary schools. (4) Training of high school teachers. Practical training for the various classes is given in well-equipped practising schools and in model small schools. The inspectors also hold schools of instruction for teachers of small schools. During 1919, 36 teachers had the advantage of attendance at these institutions. The enrolment at the Training College in 1919 numbered 70.

11. **School Savings Banks.**—Returns shew that these institutions are in existence in three States. In New South Wales, there were 836 banks at the end of 1919, the deposits amounting to £35,358, and withdrawals to £36,973. Since the establishment of the banks in 1887, deposits totalled £695,834, and withdrawals £680,938. Of the latter sum £144,619 was placed to the children's accounts in Government Savings Banks. In South Australia, 552 schools had 28,634 depositors, with £28,525 to their credit; and in Western Australia, there were 434 school banks, with 30,537 depositors and £41,303 to their credit.

12. **Expenditure on State Schools.**—The net expenditure on State education in all grades of schools, excepting technical schools, during 1901 and for the five years ended 1919 *is shewn below. The figures do not include expenditure on buildings, which is* shewn separately in a subsequent table.

EXPENDITURE ON MAINTENANCE, STATE SCHOOLS, 1901 AND 1915 TO 1919.

(COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
1901 ..	623,734	656,907	256,245	152,006	89,694	37,710	..	1,816,296
1915 ..	1,428,873	1,033,292	462,842	260,279	299,505	110,981	1,246	3,597,018
1916 ..	1,534,186	1,032,708	484,500	268,399	305,130	111,140	1,956	3,738,019
1917 ..	1,662,658	1,033,876	562,418	295,261	319,954	115,547	1,594	3,991,308
1918 ..	1,748,221	1,098,060	567,296	308,423	336,852	125,572	1,668	4,186,092
1919 ..	1,971,209	1,127,062	618,007	342,907	348,694	142,097	2,027	4,552,903

The expenditure per head of average attendance for each of the years given above will be found in the succeeding table:—

COST PER HEAD OF AVERAGE ATTENDANCE, STATE SCHOOLS, 1901 AND 1915 TO 1919.

(COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.*	C'wealth.*
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1901	4 0 10	4 7 0	3 12 9	3 9 5	5 9 3	2 12 11	..	4 0 8
1915	7 7 1	6 4 0	5 8 9	5 7 4	7 10 0	4 15 4	9 13 2	6 8 11
1916	7 13 0	6 3 1	5 14 0	5 2 4	7 12 8	4 15 5	11 18 6	6 11 4
1917	7 9 10	6 3 5	6 7 5	5 4 0	7 15 11	4 15 1	8 11 5	6 13 0
1918	7 14 10	6 10 10	6 15 6	5 3 4	7 17 3	5 1 11	8 9 4	6 18 5
1919	9 5 2	6 9 10	6 13 6	5 14 10	7 19 2	5 13 4	10 19 2	7 9 9

The rise in the figures for total expenditure in New South Wales during 1919 is accounted for largely by increases in teachers' salaries, and this, coupled with the smaller average attendance due to the epidemic of influenza, had the effect of expanding the average cost per scholar for the year as compared with the preceding years in the quinquennium.

Expenditure on school buildings in each of the years quoted was as follows :—

EXPENDITURE ON STATE SCHOOL BUILDINGS, 1901 AND 1915 TO 1919.

(COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
1901 ..	57,663	36,040	33,421	13,656	49,073	7,762	..	197,615
1915 ..	234,281	315,869	83,159	32,163	51,252	20,640	214	737,578
1916 ..	303,001	220,042	96,397	32,196	24,863	28,793	..	705,292
1917 ..	208,733	116,010	78,080	44,311	21,034	21,667	253	490,088
1918 ..	238,434	62,532	94,323	40 299	16,540	8,883	252	461,263
1919 ..	265,174	87,273	94,603	41,974	24,579	23,897	650	538,150

The net total cost during the year 1919 was as follows :—

NET TOTAL COST, STATE SCHOOL EDUCATION, 1919.

(COMMONWEALTH.)

Item.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
Net cost of education, including buildings ..	2,236,383	1,215,235	712,610	384,881	373,273	165,994	2,677	5,091,053

The figures in this and the preceding tables refer to all grades of State schools (with the exception of technical schools), and include evening schools. Including buildings the net cost per scholar in average attendance for the whole of the State schools in the Commonwealth amounted in 1919 to £8 7s. 5d. as compared with £4 9s. 3d. in 1901.

§ 3. Private Schools.*

1. **Schools, Teachers, etc., in 1919.**—The following table shews the number of Private Schools, together with the teachers engaged therein, and the enrolment and average attendance in 1919 :—

PRIVATE SCHOOLS, 1919.

(COMMONWEALTH.)

State.	Schools.	Teachers.	Enrolment.	Average Attendance.
New South Wales	677	3,815	74,306	53,373
Victoria	493	1,903	63,476	(a) 48,000
Queensland	156	896	22,174	18,305
South Australia	166	715	15,297	10,991
Western Australia	124	493	11,939	10,322
Tasmania	79	313	5,874	4,601
Northern Territory	1	2	49	38
Commonwealth	1,696	8,137	193,115	145,630

(a) Estimated.

* Private schools include all schools not wholly under State control. The term "private," though popularly applied, is of course a misnomer.

The totals for New South Wales include returns from the Sydney Grammar School, which receives a yearly State subsidy of £1,500, and which, in 1919, had an enrolment of 625, and an average attendance of 564.

The figures for Queensland include the returns from Grammar Schools, of which there are ten—six for boys and four for girls, with an enrolment of 1,142 boys and 758 girls. These schools are governed by boards of trustees, partly nominated by Government, and partly by the subscribers to the funds. The trustees make regulations regarding the fees of scholars, the salaries of teachers, and generally for the management of the schools. Each school is endowed by the Government at the rate of £750 per annum, together with, in some instances, an additional £250 to provide district scholarships. The total Government aid received in 1919 was £9,785. The Grammar Schools are inspected annually by the departmental Inspector-General.

2. **Growth of Private Schools.**—The enrolment and average attendance at Private Schools during 1891, 1901, and in each year of the period 1912 to 1919 are as follows :—

ENROLMENT AND ATTENDANCE AT PRIVATE SCHOOLS, 1891 TO 1919.

(COMMONWEALTH.)

Year.	Enrolment.	Average. Attendance.	Year.	Enrolment.	Average Attendance.
1891	124,485	99,588	1915	172,957	144,804
1901	148,659	120,742	1916	177,650	146,380
1911	160,794	132,588	1917	177,126	144,409
1912	164,085	133,940	1918	190,999	151,590
1913	161,204	132,679	1919	193,119	145,630
1914	162,813	135,141			

The small rate of increase in private school enrolment and attendance is due in a large measure to the development of the State educational systems, especially as regards the provision of secondary education. As compared with 1918, the figures for average attendance show a falling off in 1919 of about 6,000, the decrease being accounted for by the smaller attendance in New South Wales Schools resultant on the influenza epidemic.

3. **Registration of Private Schools.**—Until recent years the various State Governments had comparatively little control over privately conducted schools. With the advance of modern educational thought the position is improving, but still leaves much to be desired. It is evident that without a thorough system of registration there will always be a difficulty in regard to enforcing the compulsory clauses of the various Education Acts. Moreover, advanced educational thought demands complete supervision, not only of curricula, but of all matters pertaining to school hygiene.

In New South Wales, under the provisions of the Bursary Endowment Act of 1912, non-State Schools are inspected by the Departmental Inspector of Secondary Education for registration or renewal thereof. Under the compulsory clauses of the amending Public Instruction Act of 1916 children between the ages of 7 and 14 years must attend schools certified as efficient by the Minister. Provisional registration is granted to applicants pending inspection by Government officers. School proprietors must conform to prescribed conditions in regard to the hygiene, etc., of their buildings.

In Victoria, up to the year 1905, no attempt had been made to bring Private Schools under general administrative control, but the Registration of Teachers and Schools Act of 1906, and the Education Act of 1910, established a registration scheme under a special committee. Improvements were made in the regulation of these institutions by the Amending Act of 1914. At present, the committee consists of nine members of the Council of Education. Section 60 of the Act of 1910 also empowers the Minister of Education to authorise the inspection of any school (other than a State School) in order to ascertain whether the instruction given is satisfactory. The inspector of registered schools has pointed out that the Registration Act has had the effect of improving the school buildings as well as the methods of instruction. Since 1914, the improvement of existing buildings has been enforced where necessary, while full requirements have been insisted on in the case of additions or new buildings.

In Queensland, with the exception of the Grammar Schools, which are now examined annually, there is practically no control over the private schools, beyond the fact that they may submit themselves to inspection if so desired, and there is a similar provision under the Education Act of 1915 in South Australia. [See also Sub-section 4 hereunder.]

In Western Australia, non-Government schools must be declared efficient by the Education Department if attendance at them is to be recognised as fulfilling the requirements of the law, and the school registers must be open to the inspection of the compulsory officers of the Department.

In Tasmania the Education Act requires the teachers of other than State Schools "to furnish during January of each year returns shewing attendances at such schools." Despite the fact that penalties are prescribed for non-compliance with the law, many teachers neglect to return the forms sent out. Provision has been made for registration of private teachers and schools very much on the lines adopted in Victoria. The Act declares that all persons who were employed in a bona fide manner for at least three months before 25th October, 1906, were entitled to be registered as teachers without submitting proof of professional qualifications. No person can be registered as a private teacher since July, 1907, unless the Board is satisfied as to his fitness for the work.

4. German Schools in Australia.—The accompanying particulars in regard to German Schools in Australia have been extracted from information supplied by the State Education Departments.

New South Wales. In this State there are three private schools conducted by German teachers, and attended entirely by children of German descent. The schools are situated at Jindera, near Albury (34 pupils); Trungley Hall, near Temora (29 pupils); and Gidginbung West, near Temora (8 pupils). The schools are inspected by the Departmental officers, and school work is conducted in English. The use of German as the language of instruction is not permitted in any school. Jindera, Trungley Hall, and Gidginbung West have been gazetted "certified" schools under the provisions of the Public Instruction Amendment Act of 1916.

The scholars attending the following State schools consisted largely of children whose parents were known to be of German descent:—Alma Park, Burrumbuttock East, Gerogery Railway Station and Gerogery West, Glenellen, Hovell, Jindera, Lavington, Walkyrie, Walla Walla. Many of the scholars at these schools could speak German before they attended school.

Victoria. There are ten registered private Lutheran schools in Victoria, with an attendance of 339 pupils. In connexion with these schools it has been laid down by the Government that the German language is not to be employed in teaching, and books, charts, etc., in German are prohibited. Religious instruction in German is not permitted, and the syllabus of instruction must be on lines prescribed by the Education Department, and be such as will promote good citizenship and loyalty to the British Empire. There are no State German schools.

Queensland. There are now no German day schools in operation. In districts where German families form a considerable proportion of the population the children attend the State schools, and, in common with other children, are subject to the conditions imposed by the compulsory clauses of the State Education Act now in force.

South Australia. In the year 1916 there were 52 Lutheran schools in this State, practically all under the control of the Lutheran Church. In many of these schools the teaching was carried on in the German language, and English was hardly spoken at all. Religion as taught by the Lutheran Church formed an important part of the instruction. The Education Act of 1915 provided that teaching should be through the medium of the English language for at least four hours a day. The Education Amendment Act of 1916, however, provided that the Government should take over and carry on all Lutheran schools not earlier than 30th June, 1917, and not later than 31st December, 1917, and that no language but English should be spoken in the schools. The Act was put into force on the 1st July, 1917. With the exception of the Point Pass and Concordia Secondary Schools there are now no Lutheran schools in South Australia. Forty-nine Lutheran

schools were closed on the 30th June, and 45 of these re-opened, 25 being absorbed into neighbouring public schools, while 20 were carried on in their own buildings with an English teacher.

Western Australia and Tasmania. There are no German schools in either of these States.

§ 4. Free Kindergartens.

The following information regarding Free Kindergartens in the Commonwealth has been compiled from particulars supplied by the principals of the chief institutions or the organizing secretary in each State, except in the case of Western Australia, the details for which were furnished by the Education Department.

FREE KINDERGARTENS IN THE COMMONWEALTH, 1920.

State.	No. of Schools.	Average Attendance.	Permanent Instructors.	Student Teachers.	Voluntary Assistants.
New South Wales (Sydney)	10	600	19	53	19
Victoria (Melbourne) ..	25	850	48	26	197
(Ballarat) ..	1	20	2	..	8
Queensland (Brisbane) ..	6	173	9	15	2
South Australia (Adelaide)	7	260	9	19	..
Western Australia (Perth)	4	147	5	17	..
Tasmania (Hobart) ..	2	68	4	8	1
(Launceston) ..	1	58	1	5	3
Total ..	56	2,176	97	143	230

It must, of course, be distinctly understood that the information given above refers to institutions under private kindergarten unions or associations, and is exclusive of the kindergarten branches in the Government schools of the various States.

§ 5. Universities.

1. Origin and Development.—The history of the foundation and progress of the four then existing Australian Universities was traced at some length in Year Books I. and II. In the present volume space will permit of only a very brief reference to the subject.

(i) *University of Sydney.* The Act of Incorporation of the University of Sydney received Royal Assent on the 1st October, 1850, and the first Senate was appointed on the 24th December of that year. The first matriculation examination was held in October, 1852, when 24 candidates passed the required test, and the formal inauguration ceremony took place on the 11th October of the same year. A Royal Charter was granted to the University on the 27th February, 1858. Women students were admitted in 1881. The passing of the University (Amendment) Act of 1912 marks an important epoch in the development of the educational system of New South Wales. The Act aims at placing the University in a more effective position as the culminating point in a thoroughly co-ordinated system of State education, and it is claimed that the passing of this measure makes the educational system—from the Primary Schools through the Secondary Schools to the Technical Colleges or to the University—form a progressive and continuous whole. Under the new Act the Constitution of the Senate was radically changed, and this body now consists of—four Fellows appointed by the Governor, one elected by members of the Legislative Council, one elected by members of the Legislative

Assembly, five representatives of the University teaching staff, ten elected by graduates of the University, and three elected by the aforesaid Fellows. The professorial representatives hold office for two years, and the other Fellows for five years. In addition it was provided that in view of their distinguished services, the late Chancellor, Sir Normand MacLaurin, and the Vice-Chancellor, Judge Backhouse, should each during his life be a Fellow in addition to the ten Fellows elected by the graduates. The second part of the Act contains a feature of outstanding importance, in that it provides for the allotment of exhibitions in the proportion of 1 for every 500 of the population of New South Wales between the ages of 17 and 20, or in such other ratio as may be determined by Parliament. These exhibitions, which carry exemption from all fees, are not restricted to any particular faculty in the University, and are principally allotted in order of merit as shewn by examinations for leaving certificates at the State Schools. Pupils of registered Secondary Private Schools are also eligible for leaving certificates on the same conditions as those of the State Schools. To gain a leaving certificate a candidate must have satisfactorily completed an approved four years' course of study. Five per cent. of the total number of exhibitions allotted in any year are available for successful candidates at the written examination, even though they be ineligible for a leaving certificate. At the inception of the University there were only three professorships. The present staff consists of 26 professors, including the Director of Military Science, 6 assistant professors, and 133 lecturers and demonstrators. There are, in addition, various honorary lecturers and demonstrators, as well as 79 miscellaneous assistants in laboratories, and 5 curators of museums.

(ii) *University of Melbourne.* This institution was established by Act of Parliament assented to on the 22nd January, 1853, and its first Council was appointed on the 11th April of that year. The foundation stone of the main building was laid on the 3rd July, 1854, and the University was formally inaugurated on the 13th April, 1855. By Royal Letters Patent, issued in 1859, its degrees are, like those of the Sydney institution, declared of equal status with those of any other University in the British Empire. Women students attended lectures for the first time in 1881. The University, which began in 1855 with Schools of Arts and Laws, has now a staff of 19 professors, 74 lecturers and demonstrators, and 105 various assistants. The Conservatorium of Music has a staff numbering 38.

(iii) *University of Adelaide.* This University was established by Act of Parliament in 1874. Its origin and progress were largely due to the munificence of the late Sir Walter Watson Hughes and Sir Thomas Elder, G.C.M.G., the total gifts of the latter amounting to over £100,000. The academical work of the institution was commenced in March, 1876, when eight matriculated and fifty-two non-graduating students attended lectures. The foundation stone of the University buildings was laid on the 30th July, 1879, and the buildings were opened in April, 1882. In 1881, by Royal Letters Patent, the degrees granted by the institution were recognised as of equal distinction with those of any University in the British Empire. The Elder Conservatorium of Music was opened in 1898. Power was given by Act of Parliament in 1880 to grant degrees to women. At first there were only four professorships in the University, whereas the present staff consists of 13 professors, 49 lecturers and demonstrators, and 29 miscellaneous assistants, while the staff at the Conservatorium, not included in the foregoing figures, numbers 19.

(iv) *University of Tasmania.* The Act to establish the University of Tasmania (Hobart) was assented to on the 5th of December, 1889. At the present time the institution, which is small but efficient, possesses a staff of 7 professors, 8 independent lecturers, and 5 assistant lecturers and demonstrators. Under Statute dated 13th April, 1905, the Zeehan School of Mines and Metallurgy was affiliated to the University, while the School of Mines and Industries at Mount Lyell was affiliated on the 4th November, 1915. Tutorial classes have been arranged at Hobart and Launceston, and Extension Committees have been formed in various country centres.

(v) *University of Queensland.* The Act to establish the University of Queensland was passed in 1909, and the first Senate was appointed on the 14th April, 1910. The University was opened on the 14th March, 1911, when 60 students were matriculated. Provision has been made for a Correspondence Study department in connexion with the

institution, and at the request of the Brisbane branch of the Workers' Educational Association weekly lectures are given in History and Economics. At the present time there are 8 professors, with 10 independent lecturers, 3 assistant lecturers and demonstrators, and 4 miscellaneous assistants. The Correspondence department is under the control of a director and assistant. University extension lectures are delivered at important country centres.

(vi) *University of Western Australia.* The University of Western Australia was established under an Act which received Royal assent on the 16th February, 1911, and the first Senate was appointed on the 13th February, 1912. There are now 7 professors, in addition to 23 lecturers and demonstrators and 17 miscellaneous assistants. The Chair of Agriculture was endowed by Sir Winthrop Hackett. Students of the Perth Technical School and the Kalgoorlie School of Mines are admitted to the first year examinations in certain subjects provided they have matriculated. The institution was opened in March, 1913.

2. Teachers and Students of Universities.—The following table shews the number of professors and lecturers and the students in attendance at each of the State Universities during the year 1919 :—

UNIVERSITIES.—TEACHERS AND STUDENTS, 1919.

University.	Professors.	Lecturers and Demonstrators.	Students attending Lectures.		
			Matriculated.	Non-matriculated.	Total.
Sydney	32	133	2,153	644	2,797
Melbourne	19	74	..	..	1,840(a)
Adelaide	13	49	502	411	913(b)
Tasmania (Hobart) ..	7	13	147	23	170
Queensland (Brisbane) ..	8	13	229	34	263
Western Australia (Perth) ..	7	23	327	85	412

(a) Exclusive of 147 music students. (b) Exclusive of 521 music students.

Students at the Conservatorium of Music have been excluded in the case of Melbourne and Adelaide. The Conservatorium in Sydney, while attached to the Education Department, is not under the control of the University.

3. University Revenues.—The income of the Universities from all sources during the year 1919 was as follows :—

UNIVERSITIES.—REVENUE, 1919.

University.	Government Grants.	Fees.	Other.	Total.
	£	£	£	£
Sydney	**67,203**	**21,353**	**37,113**	**125,669**
Melbourne	**26,983**	**54,538**	**10,049**	**91,570**
Adelaide	**12,913**	**15,745**	**5,839**	**34,497**
Tasmania (Hobart)	**8,525**	**2,166**	**875**	**11,566**
Queensland (Brisbane)	**16,400**	**5,700**	**4,540**	**26,640**
Western Australia (Perth) ..	**13,498**	**2,107**	**1,574**	**17,179**

The column "Other" includes the receipts from private foundations. The extent to which the Universities have benefited by private munificence will be apparent from the following table :—

PRINCIPAL PRIVATE BENEFACTIONS TO AUSTRALIAN UNIVERSITIES.

University of Sydney.		University of Melbourne.		University of Adelaide.	
Donor.	Amount.	Donor.	Amount.	Donor.	Amount.
	£		£		£
J. H. Challis ..	250,750	Sir Samuel Wilson ..	30,000	Sir Thos. Elder	98,760
Sir P. N. Russell ..	100,000	James Stewart ..	25,624	Sir W. Hughes ..	20,000
Thos. Fisher ..	30,000	Hon. Francis Ormond	20,000	Hon. J. H. Angas	10,000
Edwin Dalton ..	8,000	John Hastie ..	19,140	R. Barr Smith ..	10,150
Hugh Dixson ..	8,050	Robert Dixson ..	10,837	Other donations	22,154
Hon. Sir W. Macleay	6,000	John Dixson Wyselaskie ..	8,400		
Mrs. Hovell ..	6,000	David Kay ..	5,764		
Thos. Walker ..	6,200	Henry Dwight ..	5,000		
Other donations ..	59,517	Wm. Thos. *Mollison*	5,000		
		Other donations ..	58,854		
Total £	474,517	Total £	188,619	Total £	161,064

In addition to the sum of £6,000 shewn above, the Hon. Sir W. Macleay also presented the Museum of Natural History to the University of Sydney.

The credit balances of some of the above endowments now amount to very considerable sums. For example, on the 31st December, 1919, the Challis Fund amounted to nearly £320,000, and the Fisher bequest to over £44,000. The cash balance at the end of 1919 on account of all private foundations to Sydney University stood at £588,206. In the case of Melbourne University the Stewart fund on the 31st December, 1918, stood at £30,440, the Hastie at £19,266, and the Dixson fund at £14,584.

In addition to the above there were various other bequests to Sydney University—*e.g.*, collection of Egyptian antiquities, etc., by Sir Charles Nicholson, and Natural History collection by Mr. Geo. Masters, while the building for the Natural History Museum was given by Sir W. Macleay. Numerous prizes and scholarships have also been given to the various colleges. In Melbourne, the Hon. Francis Ormond's benefactions to Ormond College amounted to about £108,000. With a view to advancing the cause of education in agriculture, forestry and allied subjects, Mr. Peter Waite transferred to the Adelaide University in 1914 the whole of the valuable Urrbrae estate at Glen Osmond. The estate comprises 134 acres of land with a fine mansion. In 1915, he presented the estate of Claremont and part of Netherby, comprising 165 acres, adjoining Urrbrae, while in 1918 he transferred to the University 5,880 shares in a public company, to provide funds to enable the University to utilize the land for the purposes intended. Private benefactions to the University of Tasmania and the University of Queensland amount to £3,280 and about £16,000 respectively. In connexion with the latter, the trustees of the Walter and Eliza Hall Trust have endowed fellowships in engineering, economic biology, and pure and applied chemistry. The trustees also provided a Veterinary Science Research Fellowship at Melbourne University. In Western Australia the chair of Agriculture was founded by an endowment of Sir Winthrop Hackett, first Chancellor of the University, who made available also an annual sum of £900 for the establishment of a Department of Agriculture.

Recently by bequest of the late Sir S. McCaughey a sum estimated at £400,000 accrued to the funds of Sydney University, and about £200,000 to the Queensland University.

4. University Extension.—Extension lectures were instituted at Sydney University in 1886, but under a Statute of the Senate, approved of in 1892, a Board was appointed, which was empowered from time to time to recommend to the Senate the names of suitable persons for giving courses of lectures, and to hold examinations in the subjects

of the lectures. The Board receives and considers applications from country centres, and makes provision for engaging lecturers and managing the entire business connected with the various courses. The project has only met with fair success, no lectures having been given in some years, but lately there appears to be an awakening of interest in the matter. The Board also arranges for courses of lectures in other States. In 1919 the average attendance at extension lectures in New South Wales was 130.

University extension lectures in Victoria date from the year 1891, when a Board was appointed by the Melbourne University for the purpose of appointing lecturers and holding classes and examinations at such places and in such subjects as it might think fit. Interest in University extension has varied in Victoria, the attendance at the various centres being estimated at 150 in 1919.

The Adelaide University has also instituted short courses of extension lectures in Arts and Science, to which students are admitted on payment of a nominal fee. Public intimation of these lectures is made from time to time during the session.

The University of Tasmania provides for courses of extension lectures at various centres. Tutorial classes in Economics, History, Philosophy, and Literature are conducted in Hobart, and a class in Economics has been formed at Launceston. Attendance at extension lectures in 1919 numbered 209.

As pointed out previously, a correspondence study department has been inaugurated in connexion with the University of Queensland in order to overcome, as far as possible, the difficulties of students who desire to benefit by University teaching, but who for various reasons are unable to attend the lectures. At present the work of this department is confined to the Arts course.

In Western Australia provision has been made for the giving of courses of extension lectures in Perth and suburbs, and also—by arrangement with local committees—in country centres. The professor of agriculture visits the chief farming districts for the purpose of giving lectures to, and holding conferences with the primary producers. Special short courses for farmers are given at the University. Short courses of popular lectures are also given in the evening by various professors at the University.

5. Soldiers' Scholarships at British Universities.—A scheme was evolved under which men on active service with the military and naval forces of the Dominions might benefit by the facilities for special education afforded by British Universities and technological institutions. Funds were made available to allow selected disabled soldiers and sailors to commence work as soon as they were fit to take up their studies. The Earl of Selborne generously provided a number of scholarships, a large subscription was allotted from the Kitchener Memorial Fund, and the Rhodes' Trust set apart several scholarships, some of which have been given to Australians. At present a small number of Australian soldiers are studying at Oxford, Cambridge, and Leeds. The scholarships are of the annual value of £150 to £250, and cover all expenses, including tuition fees and cost of living. They are granted with the proviso that those who hold them will follow up in their future professions and occupations the line of study embraced in the scholarships. The South African Government offered twenty-five additional scholarships for South African soldier students.

6. Workers' Educational Association.—In 1913 Workers' Educational Associations were formed in all the States of the Commonwealth, and later in New Zealand. The movement has for its object the bringing of the University into closer relationship with the masses of the people and thereby providing for the higher education of the workers in civic subjects. The work of the Association is gaining in popularity year by year and the growth of the movement has been phenomenal. The Government of New South Wales at first granted the University of Sydney the sum of £1,000 to initiate a scheme for tutorial classes. There are now direct grants from all State Governments except Western Australia, and an additional University grant in New Zealand. The particulars of grants for classes are as follow:—New South Wales, £5,650, 51 classes; Victoria, £2,250, 18 classes; Tasmania, £2,105, 15 classes; South Australia, £1,600, 9 classes; Queensland, £1,000, 10 classes. The total number of students throughout Australia is approximately 4,000, the greater number of whom are taking three-year courses while working at their daily occupations. An analysis of these occupations showed that the great majority of the students were wage-earners. The principal subjects chosen in all States are Industrial

History, Economics, Political Science, and Sociology, but there is an increasing number of classes in other subjects such as Modern History, Psychology, Philosophy, Literature, Physiology, and Biology. Each University co-operates with the W.E.A. in the formation of a joint committee for tutorial classes, which appoints tutors and generally supervises the work with the assistance of a University officer with the title of Director of Tutorial Classes. In addition to the longer and more serious courses, a great many preparatory classes, study circles, and summer schools are organised by the Association, numerous courses of public lectures are delivered, educational conferences promoted, and an extensive book service is spreading educational literature throughout the Commonwealth. A strong feature of the work of the Association is the organization of a number of country branches to carry facilities for higher education to districts in which those have hitherto been lacking. This work has been particularly successful in New South Wales, Victoria, and Tasmania. In New South Wales the Association organised an important representative conference on "Trade Unionism in Australia" in 1915, the report of which has been issued in book form. Another conference on the "Teaching of Sex Hygiene" was held in 1916, the report of which has passed through two large editions. A Commonwealth Conference held at Adelaide in 1918 resulted in the formation of a federal organisation now known as "The Workers' Educational Association of Australia." Its central office is in the Education Department, Melbourne. The Federal Council co-ordinates the activities of the W.E.A. in all States, and has inaugurated a series of publications on sociological and economic subjects. It also publishes "The Highway," a monthly magazine now in its third year, which contains notes on the movement and general discussions on educational work.

§ 6. Technical Education.

1. **General.**—Although provision has been made in some of the States in respect to many necessary branches of technical education, the total provision made would imply that this branch of education has not been regarded as of great importance. As will be seen later on, the expenditure on technical education for the whole of Australia is comparatively insignificant. The question of apprenticeship is referred to in the section dealing with "Manufacturing Industries."

2. **New South Wales.**—The present organisation of technical education in this State dates from the year 1883, when a Technical Education Board was appointed as a result of suggestions made at the Technological Conference held in 1879. This Board continued its functions till November, 1889, when it was dissolved, and the work has thenceforward been carried on as a branch of the Public Instruction Department. The chief centre of activity is, of course, in Sydney, where the Technical College and Technological Museum are situated, the college having been opened for the reception of students early in 1892. Colleges were also erected in some of the chief country towns—at Maitland in 1890; Newcastle 1896; Bathurst 1898; Broken Hill 1898; Albury 1899; and Goulburn 1902. In other centres classes were established in various subjects whenever the prospects were sufficiently encouraging. Up to the year 1912 the provision for technical education is stated to have partaken more or less of the nature of successive accretions on the original humble beginnings, rather than to have aimed at development in accordance with a definite plan. With the systematisation of the other branches of education, the necessity for more effective organisation of the technical side became imperative, and in 1913 a rearrangement was effected. Under the new conditions Trade Schools supersede the branch Technical Colleges, with the exception of that at Newcastle. Entrance to the Trades Schools is conditional on a student being actively engaged in the trade concerned during the day and possessing a certain degree of preparatory knowledge. The latter qualification is assured by the possession of a certificate from a Commercial Superior Junior Technical School or an Evening Continuation Junior Technical School. The co-operation of both employers and employees has been sought and obtained, and while at first there was some diminution in the number attending the classes, this is counterbalanced by increased efficiency. At the beginning of 1913 a conference was held between the education authorities and leading employers and employees with a view to deciding on a scheme of organisation of the system of technical education. Sub-conferences were held for each trade or group of trades. In view of the information received, the

Director of Education submitted a scheme to the Minister, and the scheme was approved at the end of November. Under the new plan the instruction is given in two divisions —(1) Trade Courses; (2) Higher Technical Courses. Instruction in the trade courses will be really continuation trade instruction, *i.e.*, supplementary to actual workshop practice under an employer. Attempts to train youths to be tradesmen in the College have been abandoned, and only those actually engaged as apprentices or journeymen are admitted to the college classes. Entrance tests are prescribed so as to ensure that students admitted to the courses will possess sufficient preparatory knowledge to benefit by them, but journeymen desirous of improvement may join at any time. Advisory committees have been appointed for each trade or group of trades. The first two or three years' course of instruction is given in the Trade Schools, of which there are ten, and the last two or three years' at the Technical Colleges, of which there are three, one at Sydney, one at Newcastle, and one at Broken Hill. The higher courses embrace instruction in advanced trades work qualifying for the position of manager or foreman, but no attempt will be made to train for the professional standing. It is hoped, however, that the scheme will develop so that part of the graduates may proceed to the University. Admission to the higher courses will eventually be restricted to those who have either graduated in the Trade Schools of the Department, or who evidence possession of a similar standard of knowledge. In addition to the courses given in the Technical Colleges and Trades Schools, elementary instruction has been provided at various centres where there has been a demand for it, and provision has been made also for special courses of instruction by correspondence. A liberal scheme of scholarships has been provided for students passing from the day or evening Junior Technical Schools or Domestic Science Schools, to the Trades and Science Schools, as well as scholarships to the University at the close of the diploma course.

At the Aviation School, Richmond, a number of students secured pilots' certificates in 1918 and were sent abroad on active service. During 1919, instruction was restricted to the training of mechanics.

The table below gives some idea of the development of technical education in New South Wales during the five years 1915-19:—

TECHNICAL EDUCATION, NEW SOUTH WALES, 1915 TO 1919.

Year.	Number of Classes.	Number of Enrolments.	Average Weekly Attendance.	Number of Lecturers and Teachers.	Fees Received.
					£
1915	519	13,000	9,257	298	9,830
1916	529	14,188	10,077	321	9,989
1917	544	15,065	11,072	354	9,354
1918	572	15,986	12,156	369	9,422
1919	557	14,580	10,949	379	9,416

At the beginning of 1913 the Sydney Technical High School and the Hurlstone Agricultural High School were removed from the control of the technical branch and placed under the Inspector of Secondary Schools. Reference to the Agricultural Colleges will be found in the section dealing with Agriculture.

During the year 1919 large numbers of men were trained at the technical colleges at Sydney and Newcastle and in various suburban trades' schools under the vocational training scheme for returned soldiers. The total number in training at all centres was 1,488.

3. Victoria.—Technical instruction in mining has for many years received considerable attention in Victoria, the Ballarat School of Mines, which was established as far back as 1870, having achieved an Australasian reputation. Fine work was also done at the School of Mines in Bendigo, and later on excellent courses of training were evolved at the Working Men's College in Melbourne. The general scheme of instruction, however, lacked cohesion, and it was not until after the publication of the Report of the Royal Commission on Technical Education, which was appointed in 1899, that many defects were remedied. It is hoped that the Agricultural and District High Schools will serve as an effective connecting link between the ordinary State Schools and the Technical

Schools, as also the Junior Technical Schools established in and around Melbourne, and at Ballarat, Bendigo, Beechworth, Echuca, Geelong, Sunshine, and Warrnambool. At present there are 26 Technical Schools receiving State aid. The largest technical institution in Melbourne is the Working Men's College, founded in 1887. The College, in addition to giving instruction in a large number of technical subjects, is also a School of Mines. Six of the Schools, viz., the Working Men's College, and the Schools of Mines at Ballarat, Bendigo, Bairnsdale, Maryborough, and Stawell are classed as Certified Science Schools, and provide full courses in metallurgy and mining engineering, extending over three or four years. There are at the present time 19 Junior Technical Schools in existence, giving a two years' course of instruction to boys between the ages of 12½ and 15 years. Only one of these is an independent establishment, the others being worked in conjunction with Technical Schools.

Over 2,000 returned soldiers have been before the Vocational Training Committee and provision made for training and placing them in employment. At latest available date, instruction was being given in 34 trades, and the number is being added to as occasion demands. The staff and councils of the various Technical Schools have taken a great interest in the work of repatriation.

TECHNICAL EDUCATION, VICTORIA, 1915 TO 1919.

Year.	Number of Classes.	Number of Enrolments.	Average Attendance.	Fees Received.
				£
1915	110	10,782	6,852	14,992
1916	104	12,049	7,724	16,439
1917	106	12,139	8,736	18,836
1918	110	13,300	9,119	19,044
1919	110	12,785	9,102	18,351

4. **Queensland.**—Up to the passing of the "Technical Instruction Act of 1908," technical education in Queensland was controlled by local committees, the State simply providing financial aid. Under the provisions of this Act, the State took over the technical colleges at Brisbane, South Brisbane and West End, and formed therefrom a Central Technical College. By an amending Act in 1918, power was taken to assume the control of other technical institutions. At the end of 1919 there were fifteen technical colleges in operation, and 34 branches were located in small towns within convenient reach of the Colleges. Preparatory Day Trade Schools were established at Ipswich and Brisbane in 1916, and Domestic Science Day Schools at Brisbane and Ipswich in 1915, and at Townsville in 1918. Several Itinerant Domestic Schools have been opened to meet the needs of districts where the population is not sufficient to warrant the establishment of permanent classes. Vocational training for returned soldiers has been provided in Brisbane and at various country centres. The progress of technical education since 1915 is shewn in the following table:—

TECHNICAL EDUCATION, QUEENSLAND, 1915 TO 1919.

Year.	Number of Classes.	Enrolments.	Average Weekly Attendance.	Number of Teachers.	Fees Received.
					£
1915	358	7,522	6,258	271	10,761
1916	365	8,644	8,500	283	12,024
1917	388	9,632	7,800	310	15,274
1918	421	9,900	8,500	295	14,851
1919	423	9,864	(a)8,000	348	11,364

(a) Estimated.

Greater attention is being devoted to the development of trade classes, and the Technical College authorities have been assisted by the University professors in the preparation of a properly organised system of Trade instruction. Full time Commercial

Day Schools are in operation at Warwick, Ipswich, Brisbane, and Townsville. Preparatory Day Trade Schools have been established in connexion with the Central and Ipswich Technical Colleges. Trade Advisory Committees have been inaugurated in connexion with several of the subjects of instruction at the Central Technical College. Compulsory attendance at technical classes in various districts has been provided for by industrial awards, the decisions so far—with the exception of Printing—being confined to trades connected with Engineering and Metal Working. The Department now pays about £2,000 per annum to the Technical Colleges for the instruction of selected State School pupils in approved subjects. Tuition by correspondence is given by the Central Technical School. It is believed that the raising of the school age to fourteen years, coupled with the establishment of High Schools, will result in a more effective co-ordination between ordinary and technical education in the State.

5. **South Australia.**—Prior to the year 1917 the condition of affairs in regard to technical education in Australia was regarded by the Education Department as unsatisfactory. There was a School of Mines and Industries in Adelaide, and in addition Schools of Mines at Moonta, Port Pirie, Kapunda, Mount Gambier, and Gawler. While the Government bore the bulk of the cost of maintenance of these institutions, they were controlled by independent councils, and there was no regular co-ordination in regard to staffs, curriculum, etc. The Education Department has now taken over the administration of Technical Education. A Director of Technical Education was appointed in 1916, and the reorganization of the system was thereupon undertaken. The work of the existing country schools was continued in 1919 with the assistance of the local Councils, but satisfactory arrangements have still to be made in regard to the management of the chief Technical School. Four special schools for the vocational training of returned soldiers have been established at Wayville, Edwardstown, Parkside and Kintore Avenue, City.

TECHNICAL EDUCATION, SOUTH AUSTRALIA, 1915 TO 1919.

Year.	Number of Classes.	Enrolments.	Average Weekly Attendance.	Number of Teachers.	Fees Received.
					£
1915	228	5,402	3,645	126	3,272
1916	203	5,335	4,520	119	3,221
1917	195	6,273	5,307	105	3,974
1918	169	5,927	4,760	127	4,393
1919	207	6,819	4,453	134	4,177

6. **Western Australia.**—A Technical School was established at Perth in 1900, and since its opening has progressed rapidly. Extensive additions to the buildings were made in 1909, and the remodelled institution was opened in 1910. The school is affiliated to the University. There are branch institutions at Midland Junction, Fremantle, Claremont, Kalgoorlie, Boulder, Geraldton, Bunbury, Collie, Coolgardie, and Albany. In addition, Continuation Classes are held at various centres. The total number of students on the roll at the end of 1919 was 3,347, of whom 2,777 were in the Metropolitan District. The schools are all under the control of the Education Department, the officer entrusted with their supervision being styled Director of Technical Education. The Director also supervises the School of Mines at Kalgoorlie, which is controlled by the Mines Department. Advanced work at present is taken only in Perth, Fremantle, Boulder, and in Kalgoorlie by the School of Mines, the other branches dealing almost entirely with preparatory work, chiefly in Continuation Classes. Until the establishment of the local University, the Perth Technical School was affiliated with Adelaide University.

In 1918 a vocational training committee was formed to superintend the training of returned soldiers, and some 2,000 men were interviewed and advised by the Committee before a Special Selection Officer was appointed in October, 1919. Originally it was

proposed to train disabled men only, but later it was decided to extend the privilege to all returned soldiers who were under 20 years of age at the time of enlistment. Provision was made for accommodating the classes in the Technical School and in workshops and other premises built or rented in various parts of the metropolis. At the end of 1919 the trades classes contained nearly 600 men. It was proposed to transfer the control of the work in 1920 to the Defence Department.

At present pupils leaving the State Schools at the age of 14 to take up employment may by attendance at evening classes qualify for free admission to the Technical Schools. Those with leaving certificates from the eighth standard, and others able to devote their full time to study, may obtain day instruction at the Technical Schools in subjects bearing on their intended occupations, or may qualify for a more extended course, including graduation at the University. Returns for the last five years are embodied in the table hereunder :—

TECHNICAL EDUCATION, WESTERN AUSTRALIA, 1915 TO 1919.

Year.	Number of Classes.	Enrolments.	Individual Students.	Number of Teachers.	Fees Received.
					£
1915	313	3,184	1,920	96	928
1916	369	3,757	2,366	103	1,058
1917	439	5,100	2,767	120	1,083
1918	435	5,853	3,320	127	920
1919	463	5,713	3,337	130	842

7. **Tasmania.**—Provision for technical education dates from the year 1888, but in the report of the Commission appointed in 1916 to enquire into the condition of technical education in Tasmania, allusion was made to the want of co-ordination between existing institutions and the Education Department, and it was recommended that the schools should be taken over by the Government, and a trained technologist appointed as organising inspector. The inspector was appointed in 1917 and a Technical Education Branch was established in 1918. The scheme of technical education includes—(1) The establishment of junior technical schools; (2) Reorganisation of existing technical schools; (3) Establishment of senior classes in technical schools; (4) A domestic school for girls. The co-operation of employers and employees has been obtained and certain of the more advanced courses have been co-ordinated with the courses given at the University. There are Junior Technical Schools for boys at Hobart and Launceston, and for boys and girls at Queenstown and Zeehan. Senior Technical Schools are in operation at Hobart and Launceston organized into Departments of Engineering and Applied Science, Art, and Trade; and at Queenstown and Zeehan, courses in Metallurgical and Mining Engineering are undertaken. Vocational classes for returned soldiers have been *established at Hobart and Launceston.*

TECHNICAL EDUCATION, TASMANIA, 1915 TO 1919.

Year.	Number of Classes.	Enrolments.	Average Weekly Attendance.	Number of Teachers.	Fees Received.
					£
1915	85	955	545	40	874
1916	69	882	433	37	992
1917	68	829	470	38	871
1918	68	836	472	38	878
1919	107	752	478	56	784

8. **Attendance at Commonwealth Technical Schools.**—The table hereunder shews the enrolment and attendance at Technical Schools and classes in the Commonwealth during 1919 :—

ENROLMENT AND ATTENDANCE AT TECHNICAL SCHOOLS, ETC., 1919.

(COMMONWEALTH.)

State.	Enrolment.	Average Attendance.
New South Wales	14,580	10,949
Victoria	12,785	9,102
Queensland	9,864	8,000(a)
South Australia	6,819	4,453
Western Australia	5,713	3,337(b)
Tasmania	752	478
Commonwealth	50,513	36,319

(a) Estimated. (b) Individual Students.

9. **Expenditure on Technical Education.**—The expenditure on technical education in each State during the period 1915 to 1919 is shewn below :—

EXPENDITURE ON TECHNICAL EDUCATION, 1915 TO 1919.

(COMMONWEALTH.)

Year.		N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
		£	£	£	£	£	£	£
1915	a	70,499	72,229	40,622	16,173	9,792	3,906	213,221
	b	7,630	6,673	29,118	..	583	..	44,004
1916	a	80,658	66,636	33,307	17,614	9,951	4,438	212,604
	b	21,481	27,462	7,776	1,276	898	..	58,893
1917	a	90,633	88,058	37,906	20,265	10,872	3,915	251,649
	b	20,163	10,603	4,599	2,637	672	..	38,674
1918	a	99,275	102,287	41,566	24,363	13,444	4,738	285,673
	b	10,651	30,656	9,931	7,706	492	..	59,436
1919	a	115,087	115,383	44,285	26,580	14,047	10,335	325,717
	b	6,302	8,083	10,180	3,586	569	..	28,720

(a) Maintenance. (b) Buildings.

The expenditure on maintenance for technical education in 1919 amounted to 1s. 3d. per head of the population of the Commonwealth, as compared with 17s. 8d. per head expended on maintenance for primary education, and apparently shews that technical education has not attained its proper place in the educational organization of Australia.

§ 7. Business Colleges and Shorthand Schools.

There has been considerable development in recent years both in the number and scope of privately conducted institutions, which aim at giving instruction in business methods, shorthand, typewriting, the use of calculating machines, etc. Particulars for all States excepting Queensland are given in the following table :—

BUSINESS COLLEGES, SHORTHAND SCHOOLS, ETC., 1919.

State.	Schools.	Teachers.	Students Enrolled.		Average Attendances.		Fees Received.
			Males.	Females.	Males.	Females.	
							£
New South Wales ..	16	123	3,086	4,439	883	1,918	31,490
Victoria	16	180	4,022	2,323	2,900	1,591	(b)
Queensland(a) ..	..	..	..	..	..	..	..
South Australia ..	5	50	859	952	604	608	11,040
Western Australia	17	120	1,532	624	(b)	(b)	14,752
Tasmania ..	3	15	187	170	174	112	1,950

(a) Included in private schools. (b) Not available.

The figures for New South Wales are exclusive of students instructed at hom through the medium of correspondence classes.

In Victoria it is explained that the preponderance of male students is due to th larger enrolment of males in the correspondence classes.

§ 8. Diffusion of Education.

1. **General Education.**—A rough indication of the state of education of the peopl is obtained at each Census under the three headings, "read and write," "read only," and "cannot read." The grouping of the whole population, exclusive of aborigines, i these three divisions is given for each Census since 1861 :—

EDUCATION AT CENSUS PERIODS, 1861 TO 1911.

(COMMONWEALTH.)

State or Territory.		1861.	1871.	1881.	1891.	1901.	1911.
N.S.W. (a)	Read & write	188,543	296,741	507,067	835,562	1,071,935	1,379,63
	Read only..	46,024	56,391	49,372	43,539	29,728	6,44
	Cannot read	116,293	140,866	193,386	244,853	253,183	260,66
Victoria	Read & write	328,362	478,464	653,346	908,490	998,010	1,136,28
	Read only..	57,351	70,953	47,950	32,794	21,852	4,63
	Cannot read	152,915	180,781	160,270	198,556	181,208	174,63
Q'land	Read & write	17,152	74,940	136,436	276,381	376,294	508,70
	Read only..	3,680	12,080	13,657	14,618	11,737	3,41
	Cannot read	9,227	33,084	63,432	102,719	110,098	93,69
S. Aust. (b)	Read & write	72,190	117,349	200,057	236,514	290,748	344,09
	Read only..	18,535	21,509	15,267	9,571	8,283	1,78
	Cannot read	36,105	46,768	64,541	74,346	64,126	62,67
W. Aust.	Read & write	7,083	14,166	19,684	34,254	150,099	237,62
	Read only..	1,301	2,717	2,430	2,061	3,107	91
	Cannot read	5,853	7,902	7,594	13,467	30,918	43,56
Tasm'nia	Read & write	48,282	55,941	74,966	103,138	133,579	155,29
	Read only..	13,136	13,946	9,606	6,287	3,907	91
	Cannot read	28,559	20,441	31,133	37,242	34,989	34,99
Northern Ter. (c)	Read & write	..	..	..	..	..	2,39
	Read only..	..	..	..	..	..	3
	Cannot read	..	..	..	..	..	87
Federal Ter. (d)	Read & write	..	..	..	..	..	1,424
	Read only..	..	..	..	..	..	14
	Cannot read	..	..	..	..	..	27
C'wealth	Read & write	662,212	1,037,601	1,501,556	2,394,339	3,020,665	3,765,46
	Read only..	140,027	177,596	138,282	108,870	78,614	18,15
	Cannot read	348,952	447,842	520,356	671,183	674,522	671,38

(a) Including Federal Territory prior to 1911. (b) Including Northern Territory prior to 1911.
(c) Included in South Australia prior to 1911. (d) Included in New South Wales prior to 1911.

The proportion in the Commonwealth of the various classes per 10,000 of the population is shewn below for each Census period :—

PROPORTION OF EDUCATED AND ILLITERATE PER 10,000 PERSONS, 1861 TO 1911.

(COMMONWEALTH.)

Division.	1861.	1871.	1881.	1891.	1901.	1911.
Read and write	5,752	6,239	7,073	7,543	8,004	8,452
Read only ..	1,217	1,068	615	343	208	41
Cannot read ..	3,031	2,693	2,312	2,114	1,788	1,507

2. Education of Children.—The figures in the preceding tables refer to the entire population of the Commonwealth, and as the age constitution of those dwelling in the various portions of Australia underwent considerable modifications during the period dealt with, a far more reliable test of the diffusion of education will be obtained by a comparison of the Census returns in regard to children of school age. For comparative purposes this has been taken to include all children in the group over five and under fifteen years of age, and the degree of education of those at each Census will be found below:—

EDUCATION OF CHILDREN AT CENSUS PERIODS, 1861 TO 1911.

(COMMONWEALTH.)

State or Territory.		1861.	1871.	1881.	1891.	1901.	1911.
N.S.W.*a*	Read & write	34,040	68,776	121,735	196,240	251,187	291,450
	Read only..	20,345	26,886	25,100	21,375	15,934	993
	Cannot read	25,472	32,924	41,663	48,580	60,734	34,793
Victoria	Read & write	42,268	122,739	170,713	201,109	238,515	237,028
	Read only..	25,518	30,636	25,249	15,056	13,128	410
	Cannot read	19,341	29,490	21,421	27,441	27,765	19,621
Q'land	Read & write	2,156	12,698	33,317	62,402	95,635	117,347
	Read only..	1,534	6,104	7,019	7,580	5,955	610
	Cannot read	1,629	6,015	9,615	16,257	18,827	8,633
S. Aust.*b*	Read & write	15,485	30,008	46,630	58,291	69,451	69,878
	Read only..	8,748	12,432	7,926	4,618	4,229	248
	Cannot read	6,907	10,074	12,483	17,988	15,480	9,638
W. Aust.	Read & write	1,333	3,218	4,418	6,910	25,326	47,568
	Read only..	226	617	1,260	933	1,815	159
	Cannot read	1,015	1,795	1,593	2,348	5,431	5,234
Tasm'nia	Read & write	11,919	17,335	17,188	24,007	32,890	36,351
	Read only..	2,848	4,143	4,108	2,974	1,795	186
	Cannot read	4,581	6,663	6,606	8,829	8,475	5,575
Northern Ter.*c*	Read & write	..	..	..	..	..	195
	Read only..	..	..	..	..	..	..
	Cannot read	..	..	..	..	..	118
Federal Ter.*d*	Read & write	..	..	..	..	..	322
	Read only..	..	..	..	..	..	2
	Cannot read	..	..	..	..	..	47
C'wealth	Read & write	107,201	255,374	394,001	549,049	711,004	800,139
	Read only..	59,219	89,818	70,662	53,136	42,856	2,614
	Cannot read	58,945	86,961	93,381	121,443	136,712	83,659

(*a*) Including Federal Territory prior to 1911.
(*b*) Including Northern Territory prior to 1911.
(*c*) Included in South Australia prior to 1911.
(*d*) Included in New South Wales prior to 1911.

In the case of Tasmania full details for the years 1861 and 1871 are not available, and the figures for those years are approximate. The variation in degree of education may be more readily seen by reducing the foregoing figures to the basis of proportion per 10,000, and the results so obtained are embodied in the following table, a glance at which is sufficient to demonstrate the remarkable strides that at least the lower branches of education have made since 1861. In that year, only 47 per cent. of the children of school age could read and write, while 26 per cent. were illiterate. The returns for 1911 shew that the proportion of those who could read and write had increased to over 90 per cent., while the totally ignorant had declined by nearly two-thirds.

EDUCATION OF CHILDREN (AGES 5 TO 14) PER 10,000 AT CENSUS PERIODS, 1861 TO 1911.

(COMMONWEALTH.)

State or Territory.		1861.	1871.	1881.	1891.	1901.	1911.
N.S.W.a	Read & write	4,263	5,349	6,458	7,372	7,662	8,907
	Read only..	2,547	2,091	1,332	803	486	30
	Cannot read	3,190	2,560	2,210	1,825	1,852	1,063
Victoria	Read & write	4,851	6,397	7,853	8,236	8,526	9,221
	Read only..	2,929	2,066	1,162	641	473	16
	Cannot read	2,220	1,537	985	1,123	1,001	763
Q'land	Read & write	4,053	5,116	6,670	7,236	7,942	9,269
	Read only..	2,884	2,460	1,405	879	495	49
	Cannot read	3,063	2,424	1,925	1,885	1,563	682
S. Aust.b	Read & write	4,973	5,763	6,956	7,206	7,790	8,761
	Read only..	2,809	2,341	1,182	571	474	31
	Cannot read	2,218	1,896	1,862	2,223	1,736	1,208
W. Aust.	Read & write	5,179	5,716	6,076	6,780	7,775	8,982
	Read only..	878	1,096	1,733	916	557	30
	Cannot read	3,943	3,188	2,191	2,304	1,668	988
Tasm'nia	Read & write	6,160	6,160	6,160	6,704	7,620	8,632
	Read only..	1,472	1,472	1,472	830	416	44
	Cannot read	2,368	2,368	2,368	2,466	1,964	1,324
Northern Ter.c	Read & write	..	..	..	..	..	6,230
	Read only..	..	..	..	..	..	..
	Cannot read	..	..	..	..	..	3,770
Federal Ter.d	Read & write	..	..	..	..	..	9,868
	Read only..	..	..	..	..	..	5
	Cannot read	..	..	..	..	..	127
C'wealth	Read & write	4,757	5,910	7,061	7,588	7,984	9,027
	Read only..	2,628	2,078	1,266	734	481	29
	Cannot read	2,615	2,012	1,673	1,678	1,535	944

(a) Including Federal Territory prior to 1911. (b) Included in South Australia prior to 1911. (c) Including Northern Territory prior to 1911. (d) Included in New South Wales prior to 1911.

3. **Education as shewn by Marriage Registers.**—Another common method of testing the spread of education is to compare the number of mark signatures with the total number of persons married during each year of a series. The percentage of males and females signing with a mark to the total persons married in the Census years 1861 to 1901, and during each of the last nine years, was as follows. The figures refer to marriages in the Commonwealth in respect of which information was obtainable.

ILLITERACY SHEWN BY MARRIAGE SIGNATURES, 1861 TO 1919.

(COMMONWEALTH.)

Year.	Proportion Signing with Marks of Total Persons Married.			Year.	Proportion Signing with Marks of Total Persons Married.		
	Males.	Females.	Total.		Males.	Females.	Total.
	Per cent.	Per cent.	Per cent.		Per cent.	Per cent.	Per cent.
1861 ..	18.50	30.69	24.60	1911 ..	0.56	0.54	0.55
1871 ..	10.58	16.40	13.49	1914 ..	0.41	0.38	0.39
1881 ..	4.34	6.78	5.56	1915 ..	0.27	0.27	0.27
1891 ..	2.27	2.40	2.34	1916 ..	0.37	0.32	0.35
1901 ..	1.35	1.29	1.32	1917 ..	0.37	0.31	0.34
1909 ..	0.65	0.62	0.64	1918 ..	0.33	0.29	0.31
1910 ..	0.56	0.60	0.58	1919 ..	0.27	0.27	0.27

The table shews that there has been a large diminution in illiteracy, and judging from the figures for the last few years the proportion bids fair to practically disappear. Up to 1891 there was a higher proportion of illiteracy amongst females, but during the later years the rates have been very even.

§ 9. Miscellaneous.

1. **Scientific Societies.**—(*a*) *Royal Societies.* Despite the trials and struggles incidental to the earlier years of the history of Australia, higher education and scientific advancement were not lost sight of. Thus the origin of the Royal Society dates as far back as 1821, when it was founded under the name of the Philosophical Society of Australasia, Sir Thomas Brisbane being its first president. Scientific work was fitfully carried on by means of a Society whose name varied as the years rolled on. It was called the Australian Philosophic Society in 1850. In 1856 the old Australian Society merged into a resuscitated Philosophical Society of New South Wales, and its papers were published up to 1859 in the Sydney Magazine of Science and Art (2 vols., 1858-9). Its present title dates from 1866. Some of the papers of the old Philosophical Society were published in 1825 under the title of "Geographical Memoirs of New South Wales" (Barron Field), and contain much that is interesting in regard to the early history of Australia. One volume containing the Transactions of the Philosophical Society of New South Wales (1862–65) was published in 1866. The journal of the Society did not begin to bear a serial number, however (vol. 1), until the year 1867. "Transactions of the Royal Society of New South Wales" were issued in 1867, the title of the series being altered to "Journal" in 1878. Up to the end of 1920, 54 volumes had been published. The exchange list comprises the names of 332 kindred societies. At the present time the library contains about 30,000 volumes and pamphlets, valued at about £8,000. Income and expenditure for the year ended 31st March, 1921, were £1,571 and £1,661 respectively, and the Society had on the same date 362 members.

The Royal Society of Victoria dates from 1854, in which year the Victorian Institute for the Advancement of Science and the Philosophical Society of Victoria were founded. These were amalgamated in the following year under the title of the Philosophical Institute of Victoria, whilst the Society received its present title in 1860. The first volume of its publications dates from 1855. The earlier publications dealt largely with Physics, later on Biology became prominent, while at present a large number of papers deal with Geology. Up to 1920, 67 volumes of proceedings had been issued. The Society exchanges with 320 kindred bodies. The constitution of the Society states that it was founded "for the promotion of art, literature, and science," but for many years past science has monopolised its energies. The library contains over 12,000 volumes, valued approximately at £3,200. Income for the year 1920 amounted to £432, and expenditure to £429. There are 200 members on the roll.

The inaugural meeting of the Royal Society of Queensland was held on the 8th January, 1884, under the presidency of the late Sir A. C. Gregory. The Society was formed "for the furtherance of the natural and applied sciences, especially by means of original research." Shortly after its formation it received an addition to its ranks by the amalgamation with it of the Queensland Philosophical Society, which was started at the time when Queensland became a separate colony. At the end of 1920 the members numbered 101; publications issued, 32 volumes; library, 6,200 volumes; societies on exchange list, 170. Income and expenditure in 1920 amounted to £273 and £172 respectively.

The present Royal Society of South Australia grew out of the Adelaide Philosophical Society, which was founded in 1853, its object being the discussion of all subjects connected with science, literature and art. Despite this programme, the tendency of the papers was distinctly scientific, or of a practical or industrial nature. With the advent of the late Professor Tate the society became purely scientific. Permission to assume the title of "Royal" was obtained in 1879, the Society thenceforward being known as "The

Royal Society of South Australia." In 1903 the society was incorporated. In 1920 the number of members was 95. The income for the year 1920 was £527, and expenditure £459. Up to 1920 the Society had issued 44 volumes of proceedings and 8 parts of memoirs, exclusive of several individual papers published in earlier years. The exchange list numbers about 220, while the library contains 3,800 volumes and over 1,750 pamphlets.

Permission to assume the title of Royal Society was granted to the Natural History and Science Society of Western Australia in March, 1914. This Society has grown out of the Mueller Botanic Society, founded in July, 1897. The objects of the society are the study of natural history and pure science, promoted by periodical meetings and field excursions, the maintenance of a library, and issue of reports of proceedings. It numbers at present 115 members, whose subscriptions form its main source of revenue, the income and expenditure in 1919–20 being respectively £97 and £100. Five volumes of proceedings were issued as Journal of the Natural History and Science Society of Western Australia, and six as of the Royal Society. Its publications are exchanged with 122 institutions at home and abroad. The library contains 200 volumes, besides 350 unbound journals, pamphlets, etc.

The Royal Society of Tasmania (the first Royal Society outside the United Kingdom) was inaugurated by Sir Eardley Wilmot, Lieutenant-Governor of Van Diemen's Land, on the 14th October, 1843. It may be mentioned, however, that a scientific society had been formed as far back as 1838 under the presidency of Sir John Franklin, then Governor of the colony, and in 1841 the number of resident members was 31, and corresponding members, 38. The meetings of this parent society were held at Government House, and three volumes of proceedings were issued. A large portion of the Colonial Gardens, together with a grant of £400, was given to the Society. A library and museum were established in 1848. In 1885 the museum and gardens were given back to the State, the Society being granted room in the museum for its library and meetings. The names of Captains Ross and Crozier, of H.M.S. *Erebus* and *Terror*, appear in the list of the first corresponding members. The society, which, since 1844, has published 60 annual volumes of proceedings, possesses 150 members, 12 corresponding members, exchanges with 223 kindred bodies, and has a library containing 13,000 volumes, in addition to manuscripts, etc., valued at over £10,000. Income for the year 1920 was £317, and expenditure £316.

(*b*) *Other Scientific Societies.* The Australasian Association for the Advancement of Science, founded in 1888, has its headquarters in Sydney. It meets usually in each State biennially in turn. Its receipts at latest available date were about £14,000, including Government aid to the amount of £4,000. The library contains 4,000 volumes and parts, valued at £400. Up to 1921, 14 volumes of proceedings have been issued. The exchange list numbers about 140. The Linnean Society of New South Wales, with headquarters in Sydney, was founded in 1875, and possesses a library of 11,000 volumes, valued at £6,000. Up to date 44 volumes of proceedings have been issued. This Society maintains five investigators engaged in research work, and owes its development almost entirely to the benefactions of Sir William Macleay. The number of ordinary members at the end of 1919 was 159. Income for the year came to £1,334, and expenditure to £1,483. The special revenue for research purposes only was £3,075, and the expenditure £2,185. The British Astronomical Society has a branch in Sydney, and in some of the States the British Medical Association has branches.

The Chemical Society of Western Australia was founded in 1915, for the promotion of the study of Chemistry and the furtherance of the interests of professional chemists. Meetings are held monthly. There is a council consisting of seven members.

In addition to the societies enumerated above, there are various others in each State devoted to branches of scientific investigation, particulars respecting which are not at present available.

2. **Libraries.**—As far as can be ascertained the total number of libraries in the Commonwealth at the latest available date was about 1,800, and the number of books contained therein is estimated at about five millions. In each of the capital cities there is a well-equipped Public Library, the institutions in Melbourne and Sydney especially comparing very favourably with similar institutions elsewhere. The reading room at the Melbourne Library ranks amongst the finest in the world. It was opened in November, 1913, and has a diameter of 114 feet, with a similar height, and is capable of seating 320 readers at a time, all of whom are under efficient supervision from the centre of the room. The following statement gives the number of volumes in the Public Library of each capital city :—

METROPOLITAN PUBLIC LIBRARIES.

City.	Number of Volumes in—			
	Reference Branch.	Ordinary Lending Branch.	Country Lending Branch.	Total.
Sydney	(a)308,557	(b)	23,535	332,092
Melbourne	267,590	37,145	..	304,735
Brisbane	41,403	..	..	41,403
Adelaide	108,341	35,563	..	143,904
Perth	110,682	14,046	..	124,728
Hobart	21,900	..	..	21,900

(a) Including 100,438 volumes in the Mitchell Library.
(b) The maintenance and control of the ordinary lending branch of the Public Library at Sydney were transferred in 1908 to the Municipal Council. At the end of December, 1919, the books numbered 32,676.

The Mitchell Library in Sydney consisted of over 60,000 volumes and pamphlets, and 300 paintings, principally relating to Australasia, valued at £100,000, and bequeathed in 1907 by Mr. D. S. Mitchell, together with an endowment of £70,000. The testator stipulated that the regulations of the British Museum were to be adopted as far as practicable, hence the library is the resort of specialists. There are now over 100,000 volumes in the library. During 1917 the Mitchell Library was further enriched by a donation of 3,676 printed volumes, 117 volumes of manuscript, and 235 pamphlets from the working library of the late John Tebbutt, of Windsor, the well-known astronomer. A very fine collection of New South Wales postage and fiscal stamps, estimated by philatelists to be worth at least £20,000, was presented to the trustees by Mr. H. L. White, of Belltrees, near Scone, in June of the same year. In 1921 this gift was supplemented by the presentation of a very fine collection of Queensland and Western Australian stamps, also valued by experts at about £20,000. The Fisher Library at the Sydney University contains 116,873 volumes, and the library attached to the Australian Museum, 22,850 volumes.

For some years past efforts have been made in South Australia to collect original documents likely to be of service in compiling a history of the State, and recently the question of founding a Public Records or Archives Office to house them has been under consideration. So far back as 1914 Professor Henderson, of Adelaide University, under commission from the South Australian Government, visited and reported on the system of keeping archives in England, France, Belgium, Holland, and Ceylon, and obtained valuable information also from the United States and Canada. A department of historical documents has now been created and valuable preliminary work done in connexion with the examination, classification, and permanent preservation of the available papers. A suitable building for housing the documents and the staff will shortly be available.

The library at Launceston, in Tasmania, contains 30,000 volumes.

The number of libraries in receipt of State or municipal aid, together with the estimated number of books contained therein, is given below for each State :—

SUBSIDISED LIBRARIES AND BOOKS THEREIN.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.
Number of libraries	(a)	480	215	220	258	23	3
Estimated number of books ..	1,450,000	1,240,000	386,000	612,000	272,000	104,000	4,000

(a) Not available.

The figures in the above table can be taken only as approximations, as in many instances returns were not received from various institutions. For New South Wales returns are not available for municipal libraries other than that in Sydney, or for libraries attached to Schools of Arts, Mechanics' Institutes and similar institutions. The Parliamentary Library in Sydney possesses over 52,000 books.

3. **Museums.**—The Australian Museum in Sydney, founded in 1836, is the oldest institution of its kind in Australia. In addition to possessing a fine collection of the usual objects to be met with in kindred institutions, the Museum contains a very valuable and complete set of specimens of Australian fauna. The cost of construction of the building was £79,000. The number of visitors to the institution in 1919 was 136,000, and the average attendance on week-days 411, and on Sundays 788. The expenditure for 1919 amounted to £11,190. A valuable library containing over 22,000 volumes is attached to the Museum. Representative collections, illustrative of the natural wealth of the country, are to be found in the Agricultural and Forestry Museum, and the Mining and Geological Museum. The latter institution prepares collections of specimens to be used as teaching aids in country schools. The "Nicholson" Museum of Antiquities, the "Macleay" Museum of Natural History, and the Museum of Normal and Morbid Anatomy, connected with the University, and the National Herbarium and Botanical Museum at the Sydney Botanic Gardens, are all accessible to the public. There is a fine Technological Museum in Sydney, with branches in six country centres, the combined institutions containing over 120,000 specimens. Valuable research work has been undertaken by the scientific staff in connexion with oil and other products of the eucalyptus. The number of visitors at the Technological Museums during 1919 was about 241,000.

The National Museum at Melbourne, devoted to Natural History, Geology, and Ethnology, is located in the Public Library Building. The National Art Gallery is also situated in the same building. The Industrial and Technological Museum, opened in 1870, contains about 9,000 exhibits. There is a fine Museum of Botany and Plant Products in the Melbourne Botanic Gardens. In addition to the large collection in the geological museum attached to the Mines Department in Melbourne, well-equipped museums of mining and geological specimens are established in connexion with the Schools of Mines in the chief mining districts.

The Queensland Museum dates from the year 1871, but the present building was opened in January, 1901. Since its inauguration the Government has expended on the institution a sum of £96,793, of which buildings absorbed £19,770, purchases £29,067, and salaries £47,956. The number of visitors during the year was 68,119, of whom 29,066 visited the institution on Sundays. The Queensland Geological Survey Museum has branches in Townsville, opened in 1886, and in Brisbane, opened in 1892.

Under the Public Library Act of 1884 the South Australian Institute ceased to exist, and the books contained therein were divided amongst the Museum, Public Library, and Art Gallery of South Australia, and the Adelaide Circulating Library. The Museum was attended by 88,000 visitors in 1919.

The latest available returns shew that the Western Australian Museum contains altogether 91,000 specimens, of an estimated value of £70,000. The Museum is housed

in the same building as the Art Gallery, and the visitors to the combined institutions during the year reached 96,000. The expenditure for the year 1919–20 was £5,989, and the Government grants for the year amounted to £5,500, the figures in each case including returns for the Public Library.

There are two museums in Tasmania—the Tasmanian Museum at Hobart, and the Victoria Museum and Art Gallery at Launceston—both of which contain valuable collections of botanical and mineral products. The Tasmanian Museum received aid from the Government during 1918 to the extent of £700. The Hobart institution cost £9,500 to construct, and that at Launceston £6,000.

4. Art Galleries.—Information regarding the State collections of objects of art in the various capitals is in some cases very meagre, while the method of presentation does not admit of any detailed comparisons being made. The National Art Gallery of New South Wales originated in the Academy of Art founded in 1871. Cost of construction is returned at £94,000. The contents, which are valued at £165,000, comprise 464 oil paintings, 447 water colours, 701 black and white, 170 statuary and bronzes, and 458 ceramics, works in metal and miscellaneous. During 1919 the average attendance on week days was 344, and on Sundays 961, the figures being much smaller than usual on account of the influenza epidemic.

The National Gallery at Melbourne at the end of 1919 contained 597 oil paintings, 4,705 objects of statuary, bronzes and ceramics, and 14,296 water-colour drawings, engravings, and photographs. The Gallery is situated in the same building as the Museum and Public Library, the total cost of construction being £325,000. Several munificent bequests have been made to the institution. That of Mr. Alfred Felton, given in 1904, amounts to about £8,000 per annum. In 1913, Mr. John Connell presented his collection of art furniture, silver, pictures, etc., the whole being valued at £10,000. The Art Gallery at Ballarat contains over 200 oil paintings and 170 water colours, etc., while there are some valuable works of art in the smaller galleries at Bendigo, Castlemaine, Geelong, and Warrnambool.

The Queensland National Art Gallery, situated in the Executive Buildings, Brisbane, was founded in 1895, and contains a small, but well chosen, collection of pictures. At the end of 1919 there were on view 97 oil paintings, 24 water colours, 99 black and white, and 30 pieces of statuary, together with various prints, mosaics, and miniatures. Exclusive of exhibits on loan, the contents are valued at about £11,000.

The Art Gallery at Adelaide dates from 1880, when the Government expended £2,000 in the purchase of pictures, which were exhibited in the Public Library building in 1882. The liberality of private citizens caused the Gallery to rapidly outgrow the accommodation provided for it in 1889 at the Exhibition Building, and on the receipt of a bequest of £25,000 from the late Sir T. Elder, the Government erected the present building, which was opened in April, 1900. The Gallery also received bequests of £16,500 in 1903 from the estate of Dr. Morgan Thomas, and of £3,000 in 1907 from Mr. David Murray. At the latest available date there were in the Gallery 232 oil paintings, 68 water colours, and 24 statuary. Building and site are valued at upwards of £31,000. Visitors during the year 1919 numbered 76,000.

The foundation stone of the present Art Gallery at Perth in Western Australia was laid in 1901, the building and site being valued at £92,000. As is the case in Melbourne, the Public Library, Museum, and Art Gallery are all situated in the one structure. The collection comprises 113 oil paintings, 55 water colours, 561 black and white, and 800 ceramics, and miscellaneous. It is estimated that the collections in the gallery possess a value of £14,000.

In Tasmania the Art Gallery at Hobart was opened in 1887. Its present contents consist of 60 oil paintings, 82 water colours, 11 black and white, and 172 etchings, engravings, etc. The building is valued at £9,500.

The Art Gallery at Launceston was erected in 1888 at a cost of £5,000, and opened on the 2nd April, 1891. Only a small proportion of the contents belong to the Gallery, the bulk of the pictures being obtained on loan. At latest date there were on view 100 oil paintings and 50 water colours valued at £10,000. The building is valued at £6,000.

5. **State Expenditure on all Forms of Educational Effort.**—The expenditure from the Consolidated Revenue in each State and Territory on all forms of educational and scientific activity during each of the last five financial years was as follows:—

EXPENDITURE ON EDUCATION, SCIENCE, AND ART, 1915–16 TO 1919–20.

State or Territory.		1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
New South Wales ..	Total £	1,717,040	1,870,043	1,968,366	2,139,541	2,359,900
	Per head	18/4	20/0	21/0	22/2	23/7
Victoria	Total £	1,161,335	1,171,757	1,227,629	1,248,994	1,474,877
	Per head	16/5	16/9	17/6	17/6	19/9
Queensland ..	Total £	703,664	763,591	827,332	892,992	1,103,334
	Per head	20/8	22/10	24/4	25/9	30/5
South Australia ..	Total £	337,307	376,730	397,210	428,519	487,609
	Per head	15/4	17/5	18/5	19/3	20/9
Western Australia ..	Total £	348,344	368,603	397,661	407,822	460,384
	Per head	21/11	23/10	25/9	26/0	27/9
Tasmania	Total £	127,016	132,590	140,766	158,501	179,871
	Per head	12/7	13/3	14/2	15/2	16/7
Northern Territory ..	Total £	2,180	2,257	2,479	2,676	2,467
	Per head	9/7	9/8	10/1	11/2	10/6
Commonwealth ..	Total £	4,396,886	4,685,571	4,961,443	5,279,045	6,068,442
	Per head	17/10	19/1	20/3	21/0	23/1

The comparatively heavy increases during the last five years are largely due to the greater cost of building, equipment, and maintenance, and in part also to increases in teachers' salaries and allowances

SECTION XXIII.

PUBLIC JUSTICE.

§ 1. Police.

1. **Introductory.**—In previous issues of the Year Book a résumé was given of the evolution of the police force in Australia up to the passing of the Police Act of 1862 (25 Vic. No. 16) in New South Wales, but considerations of space preclude its inclusion in the present volume.

In general terms the police forces of Australia may be said to be satisfactory both in regard to physique and intelligence, while as regards methods of prevention and detection of crime it is believed that the system in vogue here compares very favourably with those of the older-settled countries of the world.

2. **Strength of Police Force.**—The strength of the police force in each State during the five years ended 1919 was as follows. It may be mentioned that the police forces are entirely under State control, but, by arrangement, the Commonwealth Government utilizes their services in various directions, such as the collection of particulars for Commonwealth electoral rolls, etc. :—

POLICE FORCES IN THE COMMONWEALTH, 1915 TO 1919.

State.	Area of State in Sq. Miles.	1915.	1916.	1917.	1918.	1919.
New South Wales	310,372	2,613	2,587	2,557	2,481	2,569
Victoria ..	87,884	1,737	1,638	1,650	1,558	1,719
Queensland ..	670,500	1,194	1,176	1,152	1,141	1,119
South Australia ..	380,070	541	567	540	521	541
Western Australia	975,920	495	473	472	465	468
Tasmania ..	26,215	233	232	235	235	243
Northern Territory	523,620	26	27	27	28	32
Commonwealth	2,974,581	6,839	6,700	6,633	6,429	6,689

The figures for New South Wales for 1919 are exclusive of 39 "black trackers," *i.e.*, natives employed in detection of offenders chiefly in outlying districts. In Queensland there were 89 native trackers and 4 female searchers. The South Australian returns for 1919 are exclusive of 10 "black trackers" and 1 female searcher. The Northern Territory had 27 "black trackers" in 1919. There are also 45 "black trackers" and 5 female searchers in Western Australia, and 2 female searchers in Tasmania, not included in the table.

Average Number of Inhabitants to each Police Officer. The average number of inhabitants to each officer in each State during the same period is as follows. In considering these figures, allowance must, of course, be made for the unequal area and unequal distribution of the population of the various States.

INHABITANTS TO EACH POLICE OFFICER, 1915 TO 1919.

(COMMONWEALTH.)

State.	Number of Persons per Sq. Mile, 1911 Census.	Inhabitants to each Police Officer.				
		1915.	1916.	1917.	1918.	1919.
New South Wales	5.31	716	719	732	771	780
Victoria ..	14.97	816	855	855	910	870
Queensland ..	0.90	570	569	598	603	648
South Australia..	0.46	810	762	800	845	865
Western Australia	0.29	642	653	656	669	712
Tasmania ..	7.29	863	862	868	867	892
Northern Territory	..	175	179	184	178	147
Commonwealth	1.50	721	728	739	775	784

The figures in the preceding tables shew a great disparity in the relative numbers of the population protected by each police officer in the various States, and also in the relative area of territory to each officer. Western Australia and South Australia exhibit the largest figures in the latter respect, this, of course, being due to the fact that extensive areas in each State are as yet unpeopled by white settlers.

3. Duties of the Police.—In addition to the ordinary employment attaching to their office, the police are called upon to perform many duties which in other countries are carried out by various functionaries. Thus, in Queensland, according to the Commissioner's report for 1920, no less than sixty-four subsidiary offices are held by the police. As far as the statistician is concerned, it is found that the expert local knowledge possessed by the police renders their services in the collection of such returns as those relating to the agricultural, pastoral and manufacturing industries, private schools, etc., more than ordinarily valuable. Then, again, the fact that their services are enlisted by such widely different departments as those dealing with mines, stock, agriculture, elections, registrations of births, deaths and marriages, forestry, fisheries, explosives, old-age pensions, lunacy, public works, labour, etc., greatly enhances their general alertness by widening the range of their experience. Occasionally the objection is heard in some quarters that these special tasks involve some degree of sacrifice of ordinary routine duties, but that the general intelligence of the Australian police is adequate to the obligation to perform these tasks, besides being most creditable, results in a great saving of the public money.

4. Cost of Police Forces.—The expenditure from Consolidated Revenue on the police forces in each State during the five years 1915 to 1919 is shewn in the following table:—

COST OF POLICE FORCES IN THE COMMONWEALTH, 1915 TO 1919.

State.	1915.	1916.	1917.	1918.	1919.
	£	£	£	£	£
New South Wales ..	603,347	649,093	709,649	722,754	977,506
Victoria	365,821	356,885	371,413	397,025	490,016
Queensland	302,209	322,422	337,250	363,362	415,080
South Australia	131,580	127,632	136,158	151,090	159,258
Western Australia ..	131,806	125,446	136,752	136,295	171,832
Tasmania	45,952	47,320	49,448	54,960	66,940
Northern Territory ..	10,216	10,260	10,210	10,200	11,435
Commonwealth ..	1,590,931	1,639,058	1,750,880	1,835,686	2,292,067

The total for New South Wales includes £77,000 payment to Police Superannuation Fund. Similar payments in Victoria and Queensland amount to £29,000 and £38,000 respectively, while smaller sums are included in the returns for other States. The cost per head of the population in each State for the period 1915 to 1919 was as follows :—

COST OF POLICE PER INHABITANT, 1915 TO 1919.

(COMMONWEALTH.).

State.	1915.		1916.		1917.		1918.		1919.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
New South Wales	6	6	7	0	7	6	7	6	9	9
Victoria	5	2	5	1	5	3	5	6	6	7
Queensland	8	11	9	8	9	10	10	6	11	6
South Australia	6	0	5	11	6	3	6	9	6	10
Western Australia	8	3	8	1	8	10	8	8	10	4
Tasmania	4	7	4	9	4	10	5	3	6	2
Northern Territory	44	9	43	0	41	2	42	8	48	7
Commonwealth ..	6	6	6	9	7	2	7	4	8	9

The relatively high cost per head in Queensland and Western Australia is due to the fact that there are in those States extensive areas of sparsely settled country, in which mounted patrols have to be maintained.

Increases in salary and in cost of supplies and equipment are responsible for the all-round rise which took place in 1919.

In view of the small number of its white population and the vast extent of country to be patrolled, the figures for the Northern Territory necessarily shew a very high average. The duties of the police, moreover, chiefly pertain to matters connected with the control of aborigines.

Expenditure in connexion with police patrol in Papua during 1919-20 amounted to about £15,300.

§ 2. Lower (Magistrates') Courts.

1. Introductory.—In considering the criminal returns of the various States, due allowance must be made on account of several factors, such as the relative powers of the courts, both lower and higher, etc. In the case of lower courts, the actual number of laws in each State, the breach of which renders a person liable to fine or imprisonment, must be taken into account. Again, the attitude of the magistracy and police towards certain classes of offences is a factor, for in the case of liquor laws, or laws connected with vagrancy or gaming, the views of magistrates, and instructions issued to the police, may be responsible for considerable variations in the returns. The strength and distribution of the police forces, and the age constitution and distribution of the State's population, also influence the results. In any consideration of criminal returns, due weight should also be given to the prevalence of undetected crime, but information on this point can only be obtained for the State of Victoria. It may be mentioned that each State has its own separate judicial system, the Commonwealth jurisdiction being confined to the High Court of Australia, which is largely a Court of Appeal intermediate to the Privy Council, although it has also original jurisdiction, and the Commonwealth Court of Arbitration and Conciliation. Full particulars regarding the judicial power of the Commonwealth will be found in Chapter III. of the Commonwealth Constitution (see page 19).

2. Powers of the Magistrates.—In New South Wales there is no general limit to the powers of the magistrates in regard to offences punished summarily, their authority depending in each case on the statute which creates the offence and gives them jurisdiction. Except in the case of a very few statutes, and excluding cumulative sentences, the power

of sentence is limited to six months. Imprisonment in default of payment of fine is regulated by a scale limiting the maximum period according to the sum ordered to be paid, but in no case exceeding twelve months. Actions for debt and damage within certain limits also come within magisterial jurisdiction. In cases of debts, liquidated or unliquidated, the amount recoverable is not exceeding £50 before a court constituted of a stipendiary or police magistrate at certain authorised places, and not exceeding £30 at any other place before a court constituted of a stipendiary or police magistrate or two or more justices of the peace. The amount in actions of damage is limited to £10, but may extend to £30 by consent of parties.

In Victoria, the civil jurisdiction of magistrates is restricted to what may be designated ordinary debts, damages for assault, restitution of goods, etc., where the amount in dispute does not exceed £50. No definite limit is fixed to the powers of the magistrates on the criminal side, and for some offences sentences up to two years may be imposed. The proportion of long sentences is, however, comparatively small.

In Queensland, generally speaking, the maximum term of imprisonment which justices can inflict is six months, but in certain exceptional cases, such as offences against sections 233 and 445 of the criminal code (betting-houses and illegally using animals), sentences of twelve months may be imposed. No limit exists as to the extent to which cumulative sentences may be applied, but in practice the term is never very lengthy.

In South Australia, under the Minor Offences Act, magistrates can impose sentences up to six months, and under the Summary Convictions Act, up to three months. The Police Act of 1916 gives power to sentence up to one year, with hard labour, in the case of incorrigible rogues; while under the Quarantine Act of 1877, and the Lottery and Gaming Act of 1875, sentences of two years may be imposed.

Under the Petty Offences Act of 1867, in Tasmania, any person charged with having committed, or with having aided or abetted in the commission of an offence, in regard to property of a value not exceeding £10, may, on conviction, for a first offence, before two or more justices in Petty Sessions, be imprisoned for any term not exceeding one year, and for a term not exceeding two years for a second or subsequent offence.

3. **Persons Charged at Magistrates' Courts.**—The total number of persons who were charged before magistrates in each State is given below for the five years 1915 to 1919:—

PERSONS CHARGED BEFORE MAGISTRATES IN THE COMMONWEALTH, 1915 TO 1919.

State.	1915.	1916.	1917.	1918.	1919.
New South Wales ..	86,576	82,036	71,666	76,870	78,103
Victoria.. ..	63,140	59,315	52,175	58,965	58,470
Queensland ..	30,047	25,206	24,243	25,006	21,926
South Australia ..	9,587	8,322	8,627	9,161	8,804
Western Australia	14,864	15,454	11,885	11,599	9,769
Tasmania ..	6,306	5,259	5,278	6,583	6,362
Northern Territory ..	287	313	239	301	221
Commonwealth ..	210,807	195,905	174,113	188,485	183,655

As the table shews, there was a large decrease in 1917 in charges in New South Wales, Victoria, Queensland, and Western Australia, small increases being recorded in South Australia and Tasmania. In 1918, increases were shewn in all States except Western Australia, while in 1919 a decline was experienced in all States except New South Wales.

Investigation of the returns shews, however, that considerable variations in the total for single States are occasioned by breaches of new Acts, or the more stringent enforcement of the provisions of existing Acts. For example, the increase in the Victorian figures for 1915 was due to the inclusion in the summons returns of over 10,000 cases in

connexion with the Commonwealth Electoral Act. Any deductions drawn from the total returns as to the increase or otherwise of criminality must, therefore, be largely influenced by a careful analysis of the detailed list of offences. (See also § 2, 1, *ante*.)

The figures given in the tabulation above include, of course, a number of people who were wrongly charged, and statistically are not of general importance. The actual number of convictions in connexion with the persons who appeared before the lower courts in each year of the period 1915 to 1919 is, therefore, given hereunder. A separate line is added shewing the committals to higher courts.

CONVICTIONS AND COMMITTALS AT MAGISTRATES' COURTS, 1915 TO 1919.

(COMMONWEALTH.)

State.		1915.	1916.	1917.	1918.	1919.
New South Wales ..	Convictions	73,248	68,615	59,999	63,811	64,518
	Committals	1,570	1,656	1,383	1,308	1,680
Victoria	Convictions	44,947	40,246	38,757	44,900	44,623
	Committals	634	552	495	406	575
Queensland ..	Convictions	27,625	23,161	21,985	22,818	19,773
	Committals	411	304	312	207	255
South Australia ..	Convictions	8,222	7,145	7,417	7,898	7,527
	Committals	105	71	82	79	74
Western Australia ..	Convictions	13,308	13,595	10,535	10,162	8,702
	Committals	(a) 116	141	126	96	127
Tasmania ..	Convictions	5,492	4,614	4,722	5,854	5,807
	Committals	35	42	40	37	55
Northern Territory	Convictions	271	288	230	255	187
	Committals	1	3	3	6	3
Commonwealth	Convictions	173,113	157,664	143,645	155,698	151,137
	Committals	2,872	2,769	2,441	2,139	2,769

(a) Exclusive of four extradited.

4. **Convictions for Serious Crime.**—While the figures given in the preceding table refer to the entire body of convictions, the fact must not be lost sight of that they include a large proportion of offences of a technical nature, many of them unwittingly committed, against various Acts of Parliament. Cases of drunkenness and minor breaches of good order, which, if they can be said to come within the category of crime at all, at least do so in a very different sense to some other offences, also help to swell the list. The following table has, therefore, been prepared for the purpose of shewing the convictions at magistrates' courts for what may be regarded as the more serious offences, *i.e.*, against the person and property, either separately or conjointly, and forgery and offences against the currency :—

CONVICTIONS FOR SERIOUS CRIME AT MAGISTRATES' COURTS, 1915 TO 1919.

(COMMONWEALTH.)

State.	1915.	1916.	1917.	1918.	1919.
New South Wales ..	5,217	6,271	5,499	6,355	5,728
Victoria..	2,994	2,736	2,830	3,162	2,976
Queensland	1,639	1,487	1,403	1,427	1,526
South Australia	607	522	490	534	629
Western Australia ..	1,005	1,014	845	884	995
Tasmania	558	441	390	479	594
Northern Territory ..	18	37	50	18	11
Commonwealth ..	12,038	12,508	11,507	12,859	12,459

Compared with the population the above figures give the following results per 10,000 inhabitants :—

CONVICTIONS FOR SERIOUS CRIME PER 10,000 INHABITANTS, 1915 TO 1919.

(COMMONWEALTH.)

State.	1915.	1916.	1917.	1918.	1919.
New South Wales ..	27.9	33.5	29.4	31.2	29.1
Victoria..	21.0	19.4	20.0	22.3	20.3
Queensland	23.9	21.9	20.6	20.7	21.4
South Australia	13.8	12.1	11.3	12.2	13.8
Western Australia ..	31.2	32.2	27.4	28.4	30.8
Tasmania	28.0	22.3	19.6	23.5	28.1
Northern Territory ..	40.9	76.3	100.8	36.0	22.9
Commonwealth ..	24.3	25.5	23.5	25.8	24.2

5. Decrease in Crime.—The figures quoted in the preceding table shew that during the last five years the rate of serious crime has decreased considerably, while if the comparison be carried back to 1881 the position is seen to be still more satisfactory. The rate of convictions at magistrates' courts per 10,000 of the population is given below for each of the years 1881, 1891, 1901, 1915, and 1919. Only the more serious offences, particularised in the preceding sub-section, have been taken into consideration.

RATE OF CONVICTIONS FOR SERIOUS CRIME IN THE COMMONWEALTH, 1881 TO 1919.

Year.	Convictions per 10,000 Persons.
1881	69.3
1891	44.8
1901	29.1
1915	24.3
1919	24.2

The figures already quoted refer to total convictions, and in respect of individuals necessarily involve a considerable amount of duplication, especially in minor offences, such as petty larcenies, etc., in which the same offender appears before the court many times in the course of the year.

6. Causes of Decrease in Crime.—The statistics given shew that there has been a considerable decrease in crime throughout Australia. The results so far quoted are restricted entirely to the lower or magistrates' courts. There has also been a gratifying decrease in regard to offences tried at the higher courts, as will be seen later.

Attempts have been made to account for this decline: *e.g.*, advance in education, enlightened penological methods, etc. Much depends upon what is meant by education. Many classed in census statistics as "educated" can barely read and write. In this connexion, moreover, it ought not to be forgotten that collaterally with the introduction of ordinary intellectual education certain people have departed from their pristine virtues. In regard to the deterrent effect of punishment, it may be said that in respect of many offences, notably drunkenness, vagrancy, petty larcenies, etc., it appears to be almost negligible. In general, punishment has declined in brutality and severity, and has improved in respect of being based to a greater extent upon a scientific penological system, though in this latter respect there is yet much to be desired. Recent advances in penological methods will be referred to in a subsequent sub-section. Here it will be sufficient to remark that under the old regime, a prisoner on completion of a sentence in gaol was simply turned adrift on society, and in many cases sought his criminal friends, and speedily qualified for readmission to the penitentiary. Frequently he was goaded to this by mistaken zeal on the part of the police, who took pains to inform employers of the fact of a man having served a sentence in gaol. For a long time any assistance to

discharged prisoners was in the hands of private organisations, such as the Salvation Army Prison Gate Brigade, but in some of the States, and notably in New South Wales, the authorities themselves look after the welfare of discharged prisoners in the way of finding work, providing tools, etc. Improvements in the means of communication and identification have been responsible for some of the falling-off noticeable in the criminal returns, the introduction of the Bertillon system having contributed to certainty of identification. In his report for the year 1910 the Inspector-General of Police in New South Wales states that "criminals have a wholesome dread of the finger print system, and I have not the slightest doubt that it is one of the principal causes of the diminution of serious crimes." Part of the improvement may no doubt be referred also to the general amelioration in social conditions that has taken place during the last fifty years.

As will be seen from the following table the restrictions on the consumption of intoxicants during the course of the war has been responsible for a great falling off in convictions for drunkenness.

7. **Drunkenness.**—The number of cases of drunkenness and the convictions recorded in connexion therewith during the period 1915 to 1919 will be found in the following table :—

CASES AND CONVICTIONS.—DRUNKENNESS, 1915 TO 1919.

(COMMONWEALTH.)

State.	1915.		1916.		1917.		1918.		1919.	
	Cases.	Convictions.	Cases.	Convictions.	Cases.	Convictions.	Cases.	Convictions.	Cases.	Convictions.
New South Wales	26,010	25,863	23,192	23,017	21,063	20,902	20,651	20,511	19,834	19,546
Victoria ..	13,453	7,086	11,316	6,049	7,575	4,101	5,987	3,049	6,237	3,000
Queensland ..	16,260	16,196	13,374	13,059	13,562	13,065	12,302	11,518	12,178	11,403
South Australia ..	4,060	4,027	3,451	3,433	3,097	3,072	3,308	3,298	3,197	3,171
Western Australia	5,675	5,645	5,045	5,009	4,628	4,598	4,058	4,020	3,612	3,595
Tasmania ..	628	612	488	480	415	407	433	426	485	474
Northern Territory	158	158	208	202	210	207	81	81	109	109
Commonwealth	66,244	59,587	57,074	51,249	50,545	46,352	46,820	42,902	45,652	41,298

The number of convictions is, as might naturally be expected, almost identical with the number of cases. Victoria, however, is an exception, but in this State it is explained that offenders are generally discharged on a first appearance, and no conviction is recorded, a similar procedure being also adopted in the case of those arrested on Saturday and detained in custody till Monday. The logic of excluding these cases from the list of convictions is certainly open to doubt.

The convictions for drunkenness per 10,000 of the population during each of the years from 1915 to 1919 are given hereunder :—

CONVICTIONS FOR DRUNKENNESS PER 10,000 INHABITANTS, 1915 TO 1919.

(COMMONWEALTH.)

State.	1915.	1916.	1917.	1918.	1919.
New South Wales	138.2	123.1	111.3	107.2	99.3
Victoria	49.7	42.9	29.2	21.5	20.5
Queensland	235.7	192.7	192.0	167.3	159.9
South Australia	91.5	79.3	71.1	74.9	69.6
Western Australia	175.1	159.2	149.0	129.2	11[illegible].1
Tasmania	30.7	24.2	20.5	20.9	22.4
Northern Territory	358.8	416.6	417.5	162.2	226.7
Commonwealth	120.4	104.4	94.6	86.1	80.3

The convictions for drunkenness taken by themselves are not an altogether satisfactory test of the relative sobriety of the inhabitants of each State, inasmuch as several important factors must be taken into consideration. The age and sex constitution of the people, for example, is by no means identical in each State, Western Australia having by far the largest proportion of adult males. Owing to the smallness of the population the figures for the Northern Territory are, of course, abnormal. The avocations of the people affect the result, since persons engaged in strenuous callings are, on the whole, more likely to indulge in alcoholic stimulants than those employed in less arduous ones. The distribution of the population is also a factor, the likelihood of arrest or summons for drunkenness obviously being greater in the more densely populated regions, and lastly, allowance must be made for the attitude of the magistracy, the police, and the public generally in regard to the offence. Due account also must be taken of the recent legislation dealing with the limitation of hours during which liquor may be sold in hotels.

It is not unusual to supplement statistics of drunkenness by furnishing also the relative consumption of alcoholic beverages. Deductions drawn therefrom will be very misleading if they fail to take into account also the consumption of non-intoxicating beverages such as tea and coffee, and the general habits of the people. Throughout the greater part of Europe, tea and coffee are consumed but sparingly, while Australia, as is well known, is one of the greatest tea-drinking countries of the world.

The following table shows the consumption of spirits, wine, and beer per head of the population in the Commonwealth and in other countries at the latest date for which the information is available :—

CONSUMPTION OF ALCOHOLIC BEVERAGES IN VARIOUS COUNTRIES.

Country.	Consumption per Head of Population.			Country.	Consumption per Head of Population.		
	Spirits.	Wine.	Beer.		Spirits.	Wine.	Beer.
	Imp. Galls.	Imp. Galls.	Imp. Galls.		Imp. Galls.	Imp. Galls.	Imp. Galls.
United Kingdom (1916) ..	0.77	0.22	20.84	Canada (1918–19)	0.39	0.03	2.95
Commonwealth (1919–20) ..	0.45	0.50	13.39	Germany (1912)	0.64	0.68	23.32
New Zealand (1918) ..	0.49	0.11	9.21	France (1917) ..	0.41	26.84	4.48
				United States (1919) ..	0.79	0.50	7.88

9. Treatment of Drunkenness as Crime.—Though the problem of the correct method of dealing with dipsomania is by no means an easy one, it seems fairly clear that the present plan of bringing offenders before magistrates, and subjecting them to the penalty of imprisonment or fine, has little deterrent effect, as the same offenders are constantly reappearing before the courts. Further, the casting of an inebriate into prison, and placing him in his weakened mental state in the company of professional malefactors, doubtless tends to swell the ranks of criminals, and certainly tends to lower his self-respect. Examination of the prison records in New South Wales some years ago disclosed the fact that over 40 per cent. of the gaol population had commenced their criminal career with a charge of drunkenness. During the last few years the dangers of moral contamination in this way have been more accurately appreciated, and a system of classification of prisoners has been adopted whereby the petty offender is as far as possible kept from association with the more evilly-disposed. The Comptroller-General of Prisons in Queensland stated in his report for the year 1907 that "the drunken habit in many cases is merely one of many symptoms which jointly indicate the existence of a graver condition than simple habitual drunkenness."

9. **Remedial Treatment of Inebriates.**—Legislation has been passed in each State providing for the commitment of inebriates to special Government institutions. The laws in the various States are as follows:—New South Wales, Inebriates Act 1912; Victoria, Inebriates Act 1915; Queensland, Inebriate Institutions Act 1896; South Australia, Inebriates Acts 1908, 1913, and 1920; Western Australia, Inebriates Acts 1912 and 1919; Tasmania, Inebriates Act 1885, Inebriate Hospitals Act 1892. Curative work was first undertaken by the Government of New South Wales in 1907. In most cases the institutes are connected with the gaols, and, naturally, custodial measures are still a strong feature in their management; nevertheless, the results of remedial measures have been encouraging. In Victoria an institute purporting to be wholly remedial was founded in 1907. It may be mentioned that there are private retreats in various places in the Commonwealth, but these are not officially subsidised or inspected.

10. **Treatment of Habitual Offenders.**—In New South Wales the Habitual Criminal Act of 1905 gives judges the power of declaring a prisoner, after a certain number of sentences, to be an habitual criminal, and as such to be detained until, in the opinion of the authorities, he is fit to be at large. At the end of 1919 there were 31 persons in prison under this Act, including 3 in the hospital for criminal insane. Since the passing of the Act 81 males and 1 female have been declared to be habitual criminals. The Indeterminate Sentences Act came into force in Victoria in July, 1908, and up to the end of June, 1920, 452 prisoners had been released on probation or parole. Of this number, 216 were classed as habitual criminals, of whom 66 satisfactorily completed probation and were not again convicted, 85 were convicted and returned to prison, 61 were still on probation or on parole, and 7 died while on probation. Since the passing of the Act 635 persons have been dealt with under its provisions. At the 30th June, 1920, the number under indeterminate detention was 135. The provisions of the Habitual Criminals Amendment Act of 1907 were put into force in South Australia in 1909, and 23 criminals had been declared to be habitual offenders up to the end of 1919. Of these, 19 had been released after serving the indeterminate portion of their sentence, 3 were serving the definite portion, and 1 the indefinite portion of their sentence. The Criminal Code Amendment Act of 1914, which makes provision for the detention and control of habitual criminals, was assented to in Queensland on the 3rd December, 1914, but up to the end of 1919 no prisoners had been brought under its provisions. Naturally it will be some time before the full effect of these measures on the prevalence of crime can be estimated. The Comptroller-General of Prisons in New South Wales states, however, that the system has exercised a wholesome deterrent effect on the criminal who is not a prisoner, while the Indeterminate Sentence Board in Victoria states that it has become impressed with the advantages which this form of sentence offers, both from a reformatory and deterrent standpoint, over the ordinary sentence. In Western Australia, under the Criminal Code Amendment Act of 1918, power is given to declare a prisoner after a certain number of convictions to be an habitual criminal. Eight prisoners were under preventive detention in 1919. During the period in which the Habitual Criminals and Offenders Act of 1907 has been in force in Tasmania, 92 men and 2 women have been released under its provisions, and the results, according to the Sheriff, have been satisfactory, only two prisoners having been reconvicted and sentenced to further imprisonment. Six male prisoners were released on parole in 1919.

11. **Treatment of First Offenders.**—In all the States and in New Zealand statutes dealing with first offenders have been in force for some years, the dates of passing the Acts being as follows:—New South Wales, 1894; Victoria, 1890, 1908, and 1915 (Crimes Act, sec. 340); Queensland, 1887; South Australia, 1887 and 1913; Western Australia, 1892; Tasmania and New Zealand, 1886. The method of procedure is practically the same in all cases, i.e., with regard to most first offenders the magistrate or judge is empowered to allow the offender to go free on recognisances being entered into for his good behaviour for a certain period. In practice, this humane law has been found to work excellently, very few of those to whom its provisions have been extended having been found to relapse into crime.

12. Children's Courts.—Special courts for the trial of juvenile offenders have been established in New South Wales, Victoria, Western Australia, Tasmania, and New Zealand within the last few years, while Children's Courts, although not under that name, are practically provided for by the State Children's Acts of 1895 and 1900 in South Australia. The object of these courts is to avoid, as far as possible, the unpleasant surroundings of the ordinary police court.

13. Committals to Superior Courts.—In a previous section it has been pointed out that comparisons of criminality based on a consideration of the total returns from magistrates' courts are somewhat inadequate, seeing that the figures include numbers of cases which are merely technical breaches of laws having in some instances a purely local significance. The committals to higher courts give a better basis of comparison, although even in this connexion allowance must be made for the want of uniformity in jurisdiction. The table below gives the number of committals in each year from 1915 to 1919, with the proportion of such committals per 10,000 of the population. The rates are shewn on a separate line.

COMMITTALS TO SUPERIOR COURTS, 1915 TO 1919.

(COMMONWEALTH.)

State.		1915.	1916.	1917.	1918.	1919.
New South Wales	No.	1,633	1,707	1,383	1,308	1,680
	Rate	8.7	9.1	7.4	6.8	8.5
Victoria	No.	634	552	495	406	575
	Rate	4.4	3.9	3.5	2.9	3.9
Queensland	No.	411	304	312	207	255
	Rate	6.0	4.5	4.6	3.0	3.6
South Australia	No.	105	71	82	79	74
	Rate	2.4	1.6	1.9	1.8	1.6
Western Australia	No.	116 (a)	141	126	96	127
	Rate	3.6	4.1	3.6	3.1	3.9
Tasmania	No.	35	42	40	37	55
	Rate	1.8	2.1	2.0	1.8	2.6
Northern Territory	No.	1	3	3	6	3
	Rate	2.3	6.2	6.1	12.0	6.2
Commonwealth	No.	2,935	2,820	2,441	2,139	2,769
	Rate	5.9	5.7	5.0	4.3	5.4

(a) Exclusive of four extradited.

The above figures shew that the rate of committals for serious crime has decreased by 8.5 per cent. during the last five years, but if the comparison be carried farther back, it will be found that, as compared with the earlier years, there has been a considerable improvement. This will be evident from an examination of the following figures, which shew the rate of committals per 10,000 persons in Australia at various periods since 1861:—

RATE OF COMMITTALS IN AUSTRALIA, 1861 TO 1919.

Year	1861.	1871.	1881.	1891.	1901.	1919.
Committals per 10,000 inhabitants	22	14	12	11	8	5

The decline in proportion to population since 1861 has therefore been about 77 per cent.

§ 3. Superior Courts.

1. **Convictions at Superior Courts.**—The total number of convictions at superior courts, together with the rate per 10,000 of the population, is shewn below for each of the years 1915 to 1919:—

CONVICTIONS AT SUPERIOR COURTS, 1915 TO 1919.

(COMMONWEALTH.)

State.		1915.	1916.	1917.	1918.	1919.
New South Wales	No.	843	815	661	622	762
	Rate	4.5	4.4	3.5	3.2	3.9
Victoria	No.	431	366	303	245	347
	Rate	3.0	2.6	2.2	1.7	2.4
Queensland	No.	351	266	226	193	254
	Rate	5.1	3.9	3.3	2.8	3.6
South Australia	No.	74	52	59	46	47
	Rate	1.7	1.2	1.4	1.0	1.0
Western Australia	No.	66	91	55	55	63
	Rate	2.0	2.9	1.8	1.8	1.9
Tasmania	No.	19	30	28	18	39
	Rate	1.0	1.5	1.4	0.9	1.8
Northern Territory	No.	1	1	1	..	..
	Rate	2.3	2.1	2.0	..	..
Commonwealth	No.	1,785	1,621	1,333	1,179	1,512
	Rate	3.6	3.5	2.7	2.4	2.9

The rate in 1901 was 4.6 per 10,000, and the decrease to the end of 1919 was, therefore, about 37 per cent.

In considering the above figures allowance must be made for the various factors enumerated in a preceding paragraph. Tasmania, it will be noted, shews the smallest proportion of serious crime, while the figures available shew that the island State is relatively the smallest consumer of alcoholic beverages. That a definite causal relation exists between the figures shewn by the respective tables is not, however, obvious.

2. **Offences for which Convictions were Recorded at Superior Courts.**—In the following table will be found a classification of the principal offences for which persons were convicted at the higher courts during each year of the period 1915 to 1919. Owing to lack of uniformity in the presentation of the returns for the several States the information is confined to the chief offences against the person only. In the case of Victoria the information is incomplete regarding the convictions on summons committals. The figures quoted refer to convictions in the Commonwealth during the period dealt with.

CONVICTIONS FOR SERIOUS CRIME, SUPERIOR COURTS, 1915 TO 1919.

(COMMONWEALTH.)

Offences.	1915.	1916.	1917.	1918.	1919.
Murder, and attempts at	24	21	21	14	34
Manslaughter	17	14	9	7	14
Rape, and attempts at	14	15	15	11	3
Other offences against females	77	78	79	75	66
" " " the person	226	193	239	155	220
Total	358	321	363	262	337

While the individual totals shew considerable fluctuations, the returns generally manifest considerable improvement. The general total of convictions for all offences against the person shews a decline since 1901 of nearly 22 per cent., and since 1915 of about 6 per cent.

3. **Capital Punishment.**—The table below gives the number of executions in each State during the period 1915 to 1919 :—

EXECUTIONS, 1915 TO 1919.

(COMMONWEALTH.)

State.	1915.	1916.	1917.	1918.	1919.
New South Wales	..	2	2	..	..
Victoria	..	2	..	2	..
Queensland	..	..	..	..	..
South Australia	..	..	..	..	1
Western Australia	1	..	..	..	..
Tasmania	..	..	..	..	..
Commonwealth	1	4	2	2	1

In the early days of the history of Australia the penalty of death was attached to a large number of offences, many of which at the present time would be dealt with in the lower or magistrates' courts. With the growth of settlement, and the general amelioration in social and moral conditions, the list was, however, considerably curtailed, and the existing tendency is practically to restrict death sentences to cases of murder. It may be remarked that in cases of rape, which is a capital offence in some of the Australian States, the penalty has been but sparingly inflicted during the last few years. Juries are reputed to be loth to convict on this charge, owing to the uncertainty whether sentence of death will be pronounced.

During the period 1861 to 1880 the annual average number of executions in the Commonwealth was nine, from 1881 to 1900 the average was six, for the period 1901 to 1910 the figure stood at four, while the average for the last quinquennium was two.

§ 4. Prisons.

1. **Prison Accommodation and Prisoners in Gaol.**—The table below shews the number of prisons in each State and the accommodation therein at the end of 1919 :—

PRISONS AND PRISON ACCOMMODATION, 1919.

(COMMONWEALTH.)

State.	Number of Prisons.	Accommodation in—		Prisoners at End of Year.
		Separate Cells.	Wards.	
New South Wales	25	1,854	..	941
Victoria	15	1,505	672	665
Queensland	12	586	380	279
South Australia	13	760	463	222
Western Australia	22	455	899	158
Tasmania	2	100	..	72
Northern Territory	3	3	62	3
Commonwealth	92	5,263	2,476	2,340

The figures refer to prisoners under sentence, and are exclusive of aborigines.

The number of prisoners in gaol at the 31st December in each of the years 1915 to 1919, is given below. As stated above, the figures refer to prisoners under sentence, and are exclusive of aborigines. A separate line is added in each instance, shewing the proportion per 10,000 of the population.

PRISONERS IN GAOL, 1915 TO 1919.

(COMMONWEALTH.)

State.		1915.	1916.	1917.	1918.	1919.
New South Wales	Number..	1,582	1,451	1,292	959	941
	Proportion	8.5	7.8	6.9	5.0	4.8
Victoria	Number..	825	773	689	588	665
	Proportion	5.8	5.5	4.9	4.1	4.5
Queensland	Number..	397	319	260	255	279
	Proportion	5.8	4.7	3.9	3.9	3.9
South Australia..	Number..	282	237	268	233	222
	Proportion	6.4	5.5	6.2	5.3	4.9
Western Australia	Number..	238	207	195	185	158
	Proportion	7.5	6.6	6.3	5.9	4.9
Tasmania	Number	55	49	46	55	72
	Proportion	2.8	2.5	2.3	2.7	3.4
Northern Territory	Number..	12	14	12	7	3
	Proportion	26.3	28.9	24.2	14.0	6.2
Commonwealth	Number..	3,391	3,050	2,762	2,282	2,340
	Proportion	6.8	6.2	5.6	4.6	4.5

From the preceding table it will be seen that the proportion to population of prisoners in gaol has fallen by 34 per cent. during the last five years, but, if the comparison be carried farther back, the position is seen to be more favourable, the prisoners in gaol in the Commonwealth numbering as much as 16 per 10,000 of the population in 1891.

2. **Improvement of Penological Methods.**—During recent years Australia, in common with most other civilised countries, has introduced considerable modifications and improvements in methods of prison management. Under the old régime punishment partook more or less of the character of reprisal for wrongdoing, and the idea of constituting the prison as a reformative agency was in the background. But in recent years there has been an earnest attempt at effecting a moral reformation in the unfortunates who lapse into crime. This aspect of prison management has been specially prominent in New South Wales. A short account of the re-organisation of the prison system in this State appears in preceding Year Books (see No. V., p. 922), but considerations of space preclude its repetition here. At the present time it is found that good results have followed the principles of scientific classification and restricted association of prisoners, together with the provision of separate institutions for the treatment of inebriates. Special efforts are put forward to provide reproductive work for prisoners, and no capable able-bodied man is engaged in labour that demeans him, but on the other hand is encouraged to take pride and pleasure in good work. The Parramatta gaol, which dates from 1842, was closed on the 15th September, 1918, and to provide for the prisoners transferred therefrom the gaol at Young was proclaimed as a place of detention for the treatment of habitual criminals in the indeterminate stage. Short sentence prisoners were sent to Tamworth gaol, and longer sentence men were accommodated in Bathurst and Maitland gaols and the State penitentiary at Long Bay. At Long Bay there is a well-designed reformatory institution for females, providing

for effective classification, and a penitentiary used as a distributing centre and a place of detention for short-term prisoners from the metropolis. Goulburn gaol is used for first offenders. The first-class minor gaols at Albury, Armidale, Broken Hill, Grafton, and Maitland are convenient centres for the reception of country prisoners, and also for the treatment of special cases. There are also several second-class minor gaols and police gaols where short-sentenced prisoners from the surrounding districts are dealt with. In New South Wales the system of carrying on afforestation by prison labour, somewhat after the manner of that in vogue for several years in New Zealand, has been introduced, and in 1911 a site near Tuncurry, on the Manning River, was selected for the purpose of initiating the scheme. Pine trees of various kinds have been planted, and at the end of 1919 over 1,000,000 trees, some exceeding 10 feet in height, were well established. So far the scheme appears to be a great success, the prisoners being healthy, cheerful, well-behaved, and industrious. Each prisoner has his own comfortable hut, where he takes his meals and sleeps, and may, if he so desires, write his letters. There are no armed or night guards at the camp. During the year 1914 a property of 107 acres was purchased, near the Emu Plains railway station, for the purpose of establishing a prison farm, and this was opened in April, 1915, with ten prisoners. This institution was disestablished in 1916, when it was taken over by the Department of Agriculture, and beyond selecting the prisoners for work on the farm, the Prisons Department had no further responsibility. The farm was again transferred to the control of the Prisons Department in November, 1917. Accommodation *is provided for 42 prisoners, each of whom occupies a roomy, comfortable hut.* The inmates consist principally of first offenders under the age of 25 years, and they receive a practical training in general farm work. The daily average in 1919 was 29. That there is some connexion between mental and physical health and crime is proved by the condition in which many persons are received into gaol. In a large number of instances prisoners are found to be suffering from contagious diseases. Under the Prisoners Detention Act, and its amendment of 1918, such persons may be kept in gaol until cured. A further reform, introduced in 1915, was the provision of the Shafteshury Inebriate Institution for the treatment of non-criminal inebriates. In 1916 accommodation was provided for voluntary paying guests who wish to undergo treatment. A portion of the establishment has been set apart for the special treatment of returned soldiers convicted of minor offences, who on medical grounds are not suitable for farming or afforestation work.

Special attention is drawn by the Comptroller-General to the valuable work performed by the Prisoners' Aid Association in helping prisoners during the period of detention and after discharge.

In 1902 the system of finger-print identification of criminals was introduced, and by the year 1903 bureaux had been established in the various States for the exchange of records. Very successful results have attended the introduction of the system.

Space will not permit of more than a passing reference to the improvements brought about in prison management in the other States. In Victoria there is an excellent system of classification and allocation of prisoners in various grades to different gaols, while at the important penal establishment at Pentridge a careful segregation into several classes is carried out. In common with the other States the latest humane methods of accommodation and prison treatment have for some time been employed. An afforestation camp known as McLeod Settlement, French Island, was opened in 1916, and on the 30th June, 1920, there were 28 inmates. Since the establishment of the Camp about 2,300,000 trees have been planted by the prisoners for the Forests Department. It is stated that the experiment has resulted in improvement, both in demeanour and physique of prisoners, and it is hoped that in many cases it will be conducive to a return to honest citizenship. A prison farm has also been established about three miles from the prison at Castlemaine, and the inmates are taken to and fro daily. The number in confinement on the 30th June, 1920, was 51. Accommodation has been provided for housing a certain number of prisoners on the farm site. The orchard planted in connexion with the farm contains about 1,000 fruit trees. Provision has been made for practical instruction in carpentering and other work which will help

in securing employment for prisoners on release. During the year 80 male and 30 female cases under the Venereal Diseases Act were received, of whom 3 were treated at country gaols and the balance at the metropolitan prisons. The discharges after certificate by the Health Department numbered 118. Curative treatment is given during the period of incarceration and, if necessary, is continued afterwards outside the prison at places gazetted by the Health Department.

Queensland prisons have been considerably modernised during recent years. Amongst the principal reforms may be mentioned the reduction of the period of separate treatment undergone by prisoners sentenced to hard labour or penal servitude, a remodelling of the remission clauses and the provision of more liberal privileges in the way of correspondence and visits by friends. Electric light has been installed in the Brisbane prison, and prisoners are allowed to read up to 8 o'clock each evening. Careful classification of prisoners is carried out in the male and female divisions of Brisbane prison, at Rockhampton prison, and at the Stewart's Creek Penal Establishment. St. Helena Penal Establishment, which hitherto has been used for the accommodation of prisoners serving sentences of twelve months and upwards, is being converted into a farm colony. Well-conducted long-time prisoners will be sent to this establishment for special treatment during the latter stages of their sentences while qualifying for release. The regulations will be modified, as deemed expedient, in order to bridge the gulf between confinement and liberty. It is also intended to afford better facilities for the instruction of prisoners in trades, which will afford them the means of earning a livelihood on their release, as, naturally, men and women in this position will be less likely to relapse into crime.

Unusual circumstances have combined to keep crime at a low point in South Australia. In the first place there was never any transportation of criminals to the State, while in the earlier years of its history South Australian law breakers were transported elsewhere. The discovery of gold in the neighbouring colonies was also responsible for the drawing away of turbulent spirits who might later on have caused trouble. The present system of gaol administration was drafted mainly on English and European lines by the late W. R. Boothby, C.M.G., and has since been as far as possible adapted to modern penological procedure. At the Yatala Labor Prison, which is the largest in the State, the number in confinement on the 31st December, 1919, was 87. The prisoners are graded in three classes—first offenders, second offenders, and old offenders, the various classes being kept apart. The Adelaide Gaol, which had 60 prisoners in confinement at the end of 1919, is the next in point of importance. It is proposed to establish an afforestation camp prison at the Bangham Forest Reserve on similar lines to that at Tuncurry in New South Wales. Excellent work for the benefit and assistance of discharged prisoners is performed by the Prisoners' Aid Association.

A Royal Commission in 1911 recommended the adoption of various reforms in connexion with the prison system of Western Australia. The bulk of these were carried out, and included, amongst other things, an extension of the principle of separate treatment, improvement in prisoners' dietary scale, more satisfactory arrangements in regard to remission of sentences, and improvements in regard to hours of labour, leave of absence, etc., for the staff. Amongst other improvements recently introduced may be mentioned the grant of an eight hours' day to officers, enlargement and improved hygiene of cells, additional library facilities, assistance to discharged prisoners by provision of railway passes and monetary aid, appointment of committees to look after the welfare of discharged prisoners, and the remodelling of the "mark" system. The military method of control at Rottnest Island, coupled with considerable privileges to well-conducted prisoners, has proved very successful. Under the Prisons Act Amendment Act of 1918 a portion of Fremantle Prison was set aside as a reformatory prison in 1919, and first offenders are kept separate from other prisoners.

The daily average number of prisoners in confinement in Tasmanian gaols during the year 1919 was about 65, of whom 60 were confined in the penal establishment at Hobart and 5 at Launceston. There were no prisoners in the country gaols.

§ 5. Civil Courts.

1. *Lower Courts.*—The transactions of the lower courts on the civil side during each of the last five years are given in the table hereunder. As pointed out previously, the jurisdiction of the courts is by no means uniform in the various States.

LOWER COURTS.—CIVIL CASES, 1915 TO 1919.

(COMMONWEALTH.)

State.		1915	1916.	1917.	1918.	1919.
New South Wales ..	Cases No.	39,828	35,724	31,172	32,135	31,847
	Amount £	110,229	101,530	88,576	94,026	92,853
Victoria	Cases No.	41,055	38,573	32,187	31,870	34,841
	Amount £	188,542	170,086	143,469	149,755	155,009
Queensland ..	Cases No.	15,729	14,094	11,867	10,957	9,289
	Amount £	68,337	64,502	51,302	53,710	56,555
South Australia ..	Cases No.	17,765	16,505	14,579	13,619	14,600
	Amount £	80,918	50,515	42,774	52,847	58,647
Western Australia ..	Cases No.	17,259	15,776	13,798	11,387	11,990
	Amount £	61,169	51,050	44,937	40,243	43,601
Tasmania	Cases No.	6,081	4,879	4,611	4,489	4,325
	Amount £	67,152	30,739	29,080	28,769	29,820
Commonwealth	Cases No.	137,717	125,551	108,214	104,457	106,892
	Amount £	576,347	468,422	400,138	419,350	436,485

The figures just given represent the returns from Petty Sessions Courts in New South Wales and Victoria, the Petty Debts Courts in Queensland, the Local Courts of South Australia and Western Australia, and the Courts of Requests in Tasmania.

2. **Superior Courts.**—In the next table will be found the transactions on the civil side in the Superior Courts during each of the years 1915 to 1919.

The New South Wales returns refer to the total amounts sued for, and not the sums actually awarded after trial in the District Courts, and are exclusive of judgments signed in the Supreme Court for which the amount is not available. Statistically the chief importance of the table consists in the fact that it shews a decline in litigiousness in Australia.

SUPERIOR COURTS.—CIVIL CASES, 1915 TO 1919.

(COMMONWEALTH.)

State.		1915.	1916.	1917.	1918.	1919.
New South Wales ..	Causes No.	845	902	862	846	933
	Amount £	a293,697	a290,642	a274,646	a259,902	a333,539
Victoria	Causes No.	713	536	573	583	661
	Amount £	93,695	104,965	88,177	108,919	100,200
Queensland ..	Causes No.	129	124	126	184	172
	Amount £	22,165	20,335	27,169	19,994	44,567
South Australia ..	Causes No.	21	14	13	18	20
	Amount £	2,882	2,482	..	4,518	3,491
Western Australia ..	Causes No.	367	348	108	141	139
	Amount £	37,581	36,042	14,639	30,100	26,757
Tasmania	Causes No.	282	308	328	329	297
	Amount £	17,112	17,539	20,481	17,459	28,919
Commonwealth	Causes No.	2,357	2,232	2,008	2,101	2,161
	Amount £	467,132	472,006	425,112	440,886	537,473

3. Divorces and Judicial Separations.—The number of divorces and judicial separations in each State during the period 1915 to 1919 is shewn below. The figures which have been amended since the previous issue refer in the case of divorces to decrees made absolute in each year.

DIVORCES AND JUDICIAL SEPARATIONS, 1915 TO 1919.

(COMMONWEALTH.)

State.	1915.		1916.		1917.		1918.		1919.	
	Divorces.	Judicial Separations.	Divorces.	Judicial Separations.	Divorces.	Judicial Separations.	Divorces.	Judicial Separations.	Divorces.	Judicial Separations.
New South Wales	362	6	359	12	383	13	380	11	427	7
Victoria	218	1	206	1	202	..	233	3	346	2
Queensland	28	..	22	..	16	3	24	2	25	1
South Australia	12	..	15	..	20	1	17	..	30	..
Western Australia	42	2	36	..	51	..	63	..	45	..
Tasmania	7	..	2	..	7	..	4	..	6	2
Northern Territory ..	1	..	..	..	..	..	..	..	..	..
Commonwealth ..	670	9	640	13	679	17	721	16	879	12

The average annual number of divorces and judicial separations in the Commonwealth at decennial periods from 1871 to 1910 and for the eight years 1911–19 is as follows:—

DIVORCES AND JUDICIAL SEPARATIONS, 1871 TO 1919.

	1871–1880.	1881–90.	1891–1900.	1901–10.	1911–19.
Commonwealth ..	29	70	358	401	686

The bulk of the divorces and judicial separations refer, as the table shews, to New South Wales and Victoria, the Acts of 1899 and 1889 in the respective States having made the separation of the marriage tie comparatively easy. In some statistical works it is customary to compare the divorces in any year with the marriages in the same year. The comparison is, however, quite valueless, as there is no necessary connexion between the figures.

4. Probates.—The number of probates and letters of administration granted, together with the value of the estates concerned, is shewn below for each State for the period 1915 to 1919:—

PROBATES AND LETTERS OF ADMINISTRATION, 1915 TO 1919.

(COMMONWEALTH.)

State.		1915.	1916.	1917.	1918.	1919.
New South Wales	Number	5,089	5,336	6,498	6,877	7,188
	Value £	10,813,889	11,687,910	11,923,328	11,827,552	17,131,181
Victoria ..	Number	4,449	5,448	5,835	6,935	7,404
	Value £	8,759,728	8,917,481	9,486,584	11,009,294	13,844,186
Queensland ..	Number	896	967	841	959	1,122
	Value £	2,720,896	3,041,514	2,796,692	2,885,848	3,733,964
South Australia ..	Number	1,515	1,661	1,946	2,321	2,319
	Value £	2,894,517	2,031,206	3,188,871	4,760,203	3,470,000
Western Australia	Number	682	957	1,176	1,574	1,858
	Value £	936,107	1,690,297	1,119,024	1,198,641	2,451,828
Tasmania ..	Number	418	423	513	425	564
	Value £	793,106	871,950	644,276	928,317	1,390,836
Commonwealth	Number	13,048	14,792	16,809	19,101	19,950
	Value £	26,918,243	28,249,358	29,358,775	32,065,055	42,021,945

As may naturally be expected, the figures in the above table, giving the value of property left each year, shew considerable variations.

5. Bankruptcies.—The returns in bankruptcy during each of the last five years are given in the following table.

For several reasons comparisons drawn from the figures in the following table are of little value. In the first place, the statements of assets and liabilities are notably

unsatisfactory, particularly in regard to the former. Then, again, there is wide dissimilarity in regard to the laws in force in the various States and the method of procedure thereunder in connexion with bankruptcy. Further, there are no means of knowing how many persons in each State who were in a bankrupt condition made private arrangements with their creditors either personally or by intervention of a solicitor. The figures quoted in the table exclude the private arrangements in Victoria and South Australia, and the liquidations and compositions in Queensland and Tasmania.

BANKRUPTCIES, 1915 TO 1919.

(COMMONWEALTH.)

State.		1915.	1916.	1917.	1918.	1919.
New South Wales ..	Number ..	405	360	301	264	316
	Liabilities £	428,700	383,448	227,663	221,928	323,222
	Assets £	166,748	303,893	208,093	115,776	189,920
Victoria	Number ..	436	337	222	243	207
	Liabilities £	414,439	213,969	152,338	131,247	184,041
	Assets £	273,805	127,730	94,390	77,089	130,328
Queensland	Number ..	238	181	137	170	144
	Liabilities £	65,716	42,272	81,148	35,637	68,291
	Assets £	35,533	30,785	29,084	11,694	26,863
South Australia ..	Number ..	135	139	108	91	59
	Liabilities £	204,089	160,601	123,096	137,469	78,888
	Assets £	136,420	151,332	79,810	109,641	63,724
Western Australia ..	Number ..	53	34	56	23	31
	Liabilities £	38,008	52,345	46,588	9,559	23,958
	Assets £	34,576	52,024	44,829	4,010	21,190
Tasmania	Number ..	4	1	2	1	..
	Liabilities £	8,049	144	1,255	912	..
	Assets £	451	20	5	118	..
Northern Territory ..	Number ..	1	1	..	..	1
	Liabilities £	106	96	..	..	115
	Assets £	89	306	..	..	7
Commonwealth ..	Number ..	1,272	1,053	826	792	758
	Liabilities £	1,154,107	852,895	631,028	536,952	678,515
	Assets £	647,572	666,090	456,211	318,328	482,032

6. **High Court of Australia.**—Under the provisions of section 71 of the Commonwealth Constitution Act, the judicial power of the Commonwealth is vested in a Federal Supreme Court, called the High Court of Australia, and in such other courts as the Parliament creates or invests with federal jurisdiction. The Federal High Court possesses both original and appellate jurisdiction. The powers of the court are defined in Chapter III. of the Constitution Act and in the Judiciary Acts of 1903–15. At present the Court consists of a Chief Justice and five other judges. Sittings of the Court are held in the capitals of the various States as occasion may require. The following statement shews the transactions of the High Court for the quinquennium 1915–19:—

COMMONWEALTH HIGH COURT TRANSACTIONS, 1915 TO 1919.

Items.	1915.	1916.	1917.	1918.	1919.
I. ORIGINAL JURISDICTION.					
Number of writs issued	126	141	106	76	93
Number of causes entered for trial ..	12	14	18	8	8
Verdicts for plaintiffs	6	7	6	4	3
Verdicts for defendants	6	3	5	1	..
Otherwise disposed of	40	60	47	10	5
Amount of judgments	£4,966	£4,479	£6,025	£3,463	£1,730
II. APPELLATE JURISDICTION.					
Number of appeals set down for hearing	85	67	72	67	54
Number allowed	23	23	31	33	20
Number dismissed	39	24	33	27	25
Otherwise disposed of	23	10	8	7	9
III. AMOUNT OF FEES COLLECTED.					
Amount in each year	£808	£756	£619	£708	£502

During the year 1919 the Court dealt also with other matters as follows :—

Appeals from Assessments under the Taxation Assessment Acts ..	25
Special cases stated for the opinion of the Full Court	12
Applications for Prohibition..	3
Applications under the Trading with the Enemy Act	1

7. **Commonwealth Court of Conciliation and Arbitration.**—A more or less detailed statement regarding the operation of this Court, which was established under the provisions of the Commonwealth Conciliation and Arbitration Act of 1904–18 will be found in Section XXVII.

§ 6. Cost of Administration of Justice.

The table below shews the expenditure from Consolidated Revenue during each of the last five years in connexion with the administration of justice in each of the States. Expenditure on police and prisons has been separately shewn. With regard to the figures quoted for "other" expenditure, a slight allowance has to be made for the fact that some extraneous expenditure has been included which it was found impossible to disentangle from the total, but the amount is in no instance large.

EXPENDITURE ON JUSTICE, 1915 TO 1919.

(STATES.)

State.		1915.	1916.	1917.	1918.	1919.
		£	£	£	£	£
New South Wales	Police	603,347	649,093	709,649	722,754	977,506
	Gaols	92,529	91,913	90,633	87,875	92,781
	Other	286,924	287,419	276,722	277,805	309,632
Victoria	Police	365,821	356,865	371,413	397,025	490,016
	Gaols	57,791	59,614	55,027	54,328	61,937
	Other	169,309	165,789	163,381	166,916	193,481
Queensland	Police	302,209	322,422	337,259	363,362	415,680
	Gaols	32,981	30,803	33,626	41,871	40,502
	Other	136,619	140,643	128,328	135,753	154,022
South Australia..	Police	131,580	127,632	136,158	151,090	159,258
	Gaols	22,177	22,052	22,040	23,063	27,381
	Other	33,006	36,854	39,569	41,124	60,784
Western Australia	Police	131,806	125,446	136,752	136,295	171,832
	Gaols	23,265	22,321	22,104	23,939	28,069
	Other	86,790	79,510	75,184	71,787	83,546
Tasmania	Police	45,952	47,320	49,448	54,969	66,940
	Gaols	7,261	7,013	6,619	6,418	8,274
	Other	21,338	22,190	21,223	21,407	29,289
Northern Territory	Police	10,216	10,260	10,210	10,200	11,435
	Gaols	2,128	2,875	2,972	3,048	2,603
	Other	1,453	2,744	1,991	2,196	1,925
Commonwealth	Police	1,590,931	1,639,058	1,750,889	1,835,686	2,292,667
	Gaols	238,132	236,591	233,021	240,542	262,207
	Other	735,439	735,149	706,398	717,018	832,679

The rise in expenditure during 1919 was due chiefly to increases in wages and salaries and heavier outlay on stores and supplies.

With the exception of that of the Northern Territory, the expenditure shewn in the foregoing table is that incurred by the State Governments only, and does not include expenditure in connection with the Federal High Court, which is shewn hereunder for the period 1914–15 to 1919–20 :—

EXPENDITURE ON FEDERAL HIGH COURT, 1914–15 TO 1919–20.

Year.	Amount.	Year.	Amount.
	£		£
1914–15	31,037	1917–18	31,352
1915–16	31,447	1918–19	30,337
1916–17	31,780	1919–20	34,370

Other items of federal legal expenditure also not included in the table are:—Court of Conciliation and Arbitration £7,650, Crown Solicitor £16,042, and Secretary's office, £14,492. Excluding Patents and Copyrights, the total expenditure by the federal law authorities for the year 1919-20 was £78,686.

For the purposes of comparison the figures in the first table above have been reduced to a population basis, and the results are given in the table following:—

EXPENDITURE ON JUSTICE PER INHABITANT, 1915 TO 1919.

(STATES.)

State.		1915.	1916.	1917.	1918.	1919.
		s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales	Police	6 6	7 0	7 6	7 6	9 9
	Gaols	1 0	1 0	1 0	0 11	0 11
	Other	3 2	3 1	2 11	2 11	3 1
Victoria	Police	5 2	5 1	5 3	5 7	6 7
	Gaols	0 10	0 11	0 9	0 9	0 10
	Other	2 5	2 4	2 4	2 4	3 7
Queensland	Police	8 11	9 8	9 10	10 6	11 6
	Gaols	1 0	0 11	1 0	1 3	1 1
	Other	4 0	4 2	3 9	3 11	4 3
South Australia	Police	6 0	5 11	6 3	6 10	6 10
	Gaols	1 0	1 0	1 0	1 1	1 2
	Other	1 6	1 7	1 10	1 11	2 7
Western Australia	Police	8 3	8 1	8 10	8 9	10 4
	Gaols	1 6	1 5	1 5	1 6	1 9
	Other	5 6	5 2	4 10	4 8	5 0
Tasmania	Police	4 7	4 9	4 10	5 5	6 2
	Gaols	0 9	0 8	0 8	0 8	0 9
	Other	2 1	2 3	2 1	2 1	2 8
Northern Territory	Police	44 9	43 1	41 2	40 10	48 7
	Gaols	9 4	12 1	12 0	12 2	11 4
	Other	6 4	11 6	8 0	8 10	8 2
Commonwealth	Police	6 6	6 9	7 2	7 4	8 9
	Gaols	1 0	1 0	0 11	1 0	1 0
	Other	3 0	3 0	2 11	2 11	3 2

Owing to the smallness of the white population, large area to be policed, and cost of supplies, transport, etc., the figures for the Northern Territory must necessarily appear somewhat abnormal.

The total expenditure in the Commonwealth in connexion with the administration of justice in the various States has risen from ten shillings per inhabitant in 1901 to twelve shillings and elevenpence in 1919. Police expenditure has increased by three shillings per head, the average for gaols is about twopence per head less, while the expenditure on courts and the remaining machinery of justice has increased by one penny per head during the same period. Increased salaries and allowances, and the heavier cost of materials and equipment, were responsible for the rise in the rate per head during the last few years.

SECTION XXIV.

PUBLIC BENEVOLENCE.

§ 1. Introductory.

1. **General.**—Charity and charitable effort in Australia may be classified under three headings, viz. :—(*a*) State ; (*b*) public ; (*c*) private. To the first belong all institutions wholly provided for by the State, such as the principal lunatic asylums in the various States, the Government hospitals in Western Australia, and the Government asylums for the infirm in New South Wales. The second class comprises public institutions of two kinds, viz. :—(i) those partially subsidised by the State or State endowed, but receiving also private aid, and (ii) those wholly dependent upon private aid. To the former division belong such institutions as the principal metropolitan hospitals. In the latter are included institutions established and endowed by individuals for the benefit of the needy generally. All charitable movements of a private character are included in the third group. A more or less accurate statistical account is possible in classes (*a*) and (*b*), but in regard to (*c*) complete tabulation is, for obvious reasons, impossible.

No poor-rate is levied in Australia, and Government aid without return is required only for the aged and disabled. Moreover, although Old-age Pensions, Invalid Pensions, and Maternity Allowances are paid by the Commonwealth, the payments are looked upon rather in the light of a citizen's right than as a charity. Reference to these matters will be found in Section xxxiv., *Miscellaneous*, § 4 and 5.

From time to time relief funds have been organised for famine-stricken territories (*e.g.*, China, India, etc.), or for places where plague, flood, fire, or earthquake has shewn the need of urgent relief. Special funds are also raised for persons disabled or bereaved through war. Complete statistical information in regard to these forms of charity is not, however, available. It may be mentioned that the daily Press frequently accepts the duty of collectorship in charity appeals. In regard to subscriptions to the various patriotic funds which have been instituted in consequence of the war, the total for Australia, up to 31st December, 1919, has been estimated to exceed £12,500,000 sterling.

§ 2. The Larger Charities of Australia.

1. **Hospitals.**—All of the State capitals have several large and well-equipped hospitals, and there is at least one in every important town. In large centres there are hospitals for consumptives, women, children, infectious diseases, incurables, etc. The number of hospitals in Australia, with the admissions, patients treated, deaths, and expenditure, is shewn in the following table. Only general hospitals are tabulated, since the working of "special" institutions is not properly comparable with those which treat every class of case.

HOSPITALS IN THE COMMONWEALTH, 1915 TO 1919.

Particulars.		1915.	1916.	1917.	1918.	1919.
Number of institutions	..	398	391	399	393	393
Number of beds ..	..	16,374	15,811	16,763	17,000	17,390
Admissions during year	..	169,892	166,588	164,889	174,379	193,920
Indoor patients treated	..	179,829	176,279	174,387	184,176	203,929
Deaths	..	12,809	13,128	11,885	12,494	15,758
Expenditure ..	£	1,280,461	1,351,160	1,396,361	1,543,162	1,798,297

In addition to those admitted to the institutions there are large numbers of out-patients. The exact number of these cannot be given, but a rough estimate of distinct cases for 1919 places the total at about 300,000.

Fuller details of hospital statistics are given for 1919 in the tables below, the States and Northern Territory of the Commonwealth being shewn separately :—

GENERAL HOSPITALS.—NUMBER, STAFFS, AND ACCOMMODATION OF HOSPITALS IN THE COMMONWEALTH, 1919.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	C'wealth.
Number of Hospitals—								
Government ..	4	..	3	10	22	2	5	46
Other	153	52	85	19	28	10	..	347
Total ..	157	52	88	29	50	12	5	393
Medical Staff—								
Males	863	91	185	112	49	21	1	1,334
Females			9	2	1	..	..	
Total ..	863	91	194	114	50	21	1	1,334
Nursing Staff and Attendants—								
Males	76	12	284	58	97	2	3	532
Females	2,244	876	1,178	564	564	172	7	5,605
Total ..	2,320	868	1,462	622	661	174	10	6,137
Accommodation—								
Number of dormitories, etc.	1,047	429	555	221	213	123	11	2,599
Capacity in cubic feet	7,909,652	4,824,585	3,959,281	1,681,821	2,394,195	879,439	60,912	21,709,885
Number of beds, etc. ..	6,785	3,565	3,555	1,222	1,651	590	22	17,390
Cubic feet to each bed	1,166	1,353	1,128	1,376	1,450	1,491	3,000	1,248

In addition to the accommodation provided in the ordinary wards, a considerable amount of accommodation for certain classes of cases is furnished in out-door or verandah sleeping places. Full particulars are not available.

GENERAL HOSPITALS.—PATIENTS TREATED IN HOSPITALS IN THE COMMONWEALTH, 1919.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	C'wealth.
Indoor Relief: Distinct Persons Treated—								
Males	46,233	18,866	27,559	6,948	8,897	4,164	258	112,925
Females	40,651	16,291	16,959	5,743	6,100	4,122	138	90,004
Total ..	86,884	35,157	44,518	12,691	14,997	8,286	396	202,929
Inmates at beginning of Year—								
Males	2,394	1,194	1,254	411	620	197	19	6,089
Females	1,935	999	761	324	355	212	5	4,591
Total ..	4,329	2,193	2,015	735	975	409	24	10,680
Admissions and Re-admissions during Year—								
Males	43,839	17,672	26,305	7,701	8,277	3,967	229	107,990
Females	38,716	15,292	16,198	5,936	5,745	3,910	133	85,930
Total	82,555	32,964	42,503	13,637	14,022	7,877	362	193,920

GENERAL HOSPITALS.—PATIENTS TREATED IN HOSPITALS IN THE COMMONWEALTH, 1919—*continued.*

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	C'wealth.
Discharges—Recovered :								
Males	31,276	14,780	23,542	4,611	3,660	3,569	203	81,641
Females	30,766	13,398	14,578	4,340	3,388	3,614	125	70,209
Total ..	62,042	*a*28,178	*a*38,120	8,951	7,048	*a*7,183	328	151,850
Relieved :								
Males	7,085	..	..	1,549	3,458	..	..	*c*
Females	4,283	..	..	939	1,801	..	..	*c*
Total ..	11,368	*b*	*b*	2,488	5,259	*b*	..	*c*
Unrelieved :								
Males	1,241	110	255	729	384	111	..	2,830
Females	952	115	205	289	181	86	..	1,828
Total ..	2,193	225	460	1,018	565	197	..	4,658
Not stated :								
Males	..	665	407	39	..	6	..	1,117
Females	..	453	326	16	..	18	..	813
Total ..	..	1,118	733	55	..	24	..	1,930
Deaths—								
Males	4,087	2,117	1,965	696	813	246	16	9,940
Females	2,537	1,282	1,052	388	375	181	3	5,818
Total ..	6,624	3,399	3,017	1,084	1,188	427	19	15,758
Inmates at end of Year—								
Males	2,544	1,194	1,390	488	582	232	24	6,454
Females	2,113	1,043	798	288	355	223	17	4,837
Total ..	4,657	2,237	2,188	776	937	455	41	11,291
Average Daily Number Resident—								
Males	2,647	2,275 (Males and Females)	2,347	491	637	199	20	11,865 (Males and Females)
Females	2,312			370	367	193	7	
Total ..	4,959	2,275	2,347	861	1,004	392	27	11,865

(*a*) Including relieved. (*b*) Included in recovered. (*c*) Not available.

The revenue and expenditure of the institutions were as follows :—

GENERAL HOSPITALS.—REVENUE AND EXPENDITURE, 1919.

Particulars.	N.S.W.	Victoria. *a*	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	C'wealth.
Revenue—	£	£	£	£	£	£	£	£
Fees of patients, etc. ..	95,681	42,530	40,001	22,933	30,339	14,518	652	246,654
Government grants ..	386,316	62,860	195,536	86,467	96,309	36,957	6,178	870,623
Other ..	294,108	156,654	113,257	16,447	25,841	7,829	..	614,136
Total ..	776,105	262,044	348,794	125,847	152,489	59,304	6,830	1,731,413
Expenditure—								
Buildings ..	132,589	26,341	31,548	8,375	1,635	2,128	177	1,798,297 (all items)
Salaries ..	288,879	239,020 (Salaries and Maintenance)	129,830*b*	47,054	64,190	21,678	2,026	
Maintenance ..	321,382		192,203	65,938	82,825	22,547	2,225	
Other ..	74,745	5,485	10,752	3,723	4,946	13,654	2,402	
Total ..	817,595	270,846	364,333	125,090	153,596	60,007	6,830	1,798,297

(*a*) Year ended 30th June, 1919. (*b*) Including rents.

2. ***Principal Hospitals in each State.***—The tables here given refer to general hospitals. In addition there are hospitals for "specials" (such as women's, children's, and infectious diseases hospitals), and institutions nearly allied to hospitals (such as consumptive sanatoria). Where the institutions carry on general hospital relief, they are included with those establishments.

(i) *New South Wales.* A Government hospital, with a staff of 23 medical officers and accommodation for about 600 patients, is established at Little Bay, near Sydney. Altogether, there are four hospitals for women, one for women and children, and three for children in the metropolis. The Royal Prince Alfred Hospital, with a medical staff of 80, and with 544 beds, is the largest metropolitan endowed institution. Amongst other large metropolitan hospitals may be mentioned the Sydney Hospital, with a medical staff of 59 and with 414 beds, St. Vincent's with 52 doctors and 190 beds, and Lewisham with 27 medical attendants and 164 beds. In extra-metropolitan areas the Waterfall Hospital for Consumptives, which is a Government institution, provides accommodation for 408 patients. The Newcastle Hospital has 188 beds and a medical staff of 20. At the Carrington Convalescent Home at Camden, 110 patients may be admitted. The hospital in the Broken Hill district can accommodate 162.

(ii) *Victoria.* There are several large metropolitan hospitals in Victoria. The largest of these, the Melbourne Hospital, has 350 beds; the Austin Hospital for Incurables has 290, the Alfred Hospital 168, St. Vincent's 138, and the Homœopathic 98. Amongst the country institutions, Bendigo has 222 beds, Geelong 217, and Ballarat 170.

(iii) *Queensland.* Of the metropolitan hospitals, the largest is the Brisbane General, which can accommodate 361 patients. The Children's Hospital has 218 beds, the Diamantina 174, and the Mater Misericordiæ 112. Ipswich Hospital, with 146 beds, is the largest of the country institutions, followed by Toowoomba with 130, Rockhampton with 108, Townsville with 105, Maryborough 96, Charters Towers 92, Bundaberg 92, Cairns 84, Mackay 80, and Mt. Morgan 71.

(iv) *South Australia.* Including the Consumptive Home and Infectious Diseases Block, the Adelaide Hospital can accommodate a total of 440 patients. The most important of the country hospitals are at Port Augusta, Port Pirie, and Wallaroo, with 72, 56, and 48 beds respectively. The Adelaide Children's Hospital has 96 beds.

(v) *Western Australia.* Information regarding the capacity of the Western Australian hospitals is not available, but some idea of their comparative importance may be gained from the figures relating to cases treated. In the metropolis, 4,764 cases were treated at the Perth Hospital in 1919, and 1,847 at the Perth Children's. Of the country hospitals, Kalgoorlie returned 1,269 cases, Fremantle 1,094, and Wooroloo 603.

(vi) *Tasmania.* There are well-equipped general hospitals in Hobart and Launceston. The former has a medical staff of 4 and can accommodate 225 patients, and the latter has 190 beds and a medical staff of 2. Hospitals for women have been established in both centres, and there is a sanatorium for consumptives at Newtown. Outside the metropolitan area, the Devon Cottage Hospital has a medical staff of 2, and beds for 74 patients; the Lyell District Hospital can accommodate 44 patients, and there are 9 other institutions in important country centres.

(vii) *Northern Territory.* In addition to the hospitals at Darwin and Pine Creek, arrangements have been made for the supply of medicines and first aid to outlying stations.

3. **Benevolent and Destitute Asylums.**—A marked increase has taken place in the amount of aid bestowed upon the aged. Two elements, each of them independent of the growth of population, have influenced this increase. One is, that the general age of the community has advanced—the large flow of immigration of sixty and seventy years ago having been mostly of persons in the prime of life; the other is the increased regard

paid in all British communities to the well-being of the helpless. The result in Australia has been that numerous establishments have been founded for the housing and protection of persons no longer able to care for themselves. The institutions are supported by Government and municipal aid, public subscriptions, charity performances, bequests, etc., and in many cases relatives of indigent and afflicted persons contribute to their maintenance.

The impossibility of an entirely satisfactory statistical tabulation in regard to all forms of charitable aid is especially marked in the case of benevolent institutions, since the conditions under which they have been established in the different centres in the Commonwealth have caused divergence in their development and in the classes of cases treated by them. For example, in Western Australia the Home for Destitute Women includes a maternity ward, for which the statistics are not separately kept. Since the predominating function of the institution is aid to the destitute, it has been included among benevolent asylums. In Victoria, nine of the hospitals are also benevolent asylums, and they are included wholly under the former. In South Australia, the Destitute Asylum includes lying-in and children's departments.

BENEVOLENT INSTITUTIONS.—REVENUE AND EXPENDITURE, 1919.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£	£	£	£	£	£	£
Revenue—							
Government aid	94,485	21,784	44,765	32,758	20,864	10,398	225,054
Municipal aid	..	801	..	..	..	..	801
Public subs., legacies, etc. ..	3,410	13,026	1,359	103	..	..	17,898
Fees	16,208	14,383	..	5,210	4,210	3,414	43,425
Other	3,515	6,308	1,186	323	..	451	11,783
Total	117,618	56,302	47,310	38,394	25,074	14,263	298,961
Expenditure—							
Buildings	4,002	2,384	1,440	251	..	519	8,596
Maintenance	113,189	47,323	24,256	37,988	25,074	8,810	256,640
Other	1,578	2,476	185	..	..	4,934	9,173
Total	118,769	52,183	25,881	38,239	25,074	14,263	274,409

(i) *Government Asylums for the Infirm, New South Wales.* There are five asylums for the infirm maintained by the Government—four for men and one for women. Rookwood, the largest of these, had in 1919 an average number resident of 1,219, Newington 701, and Liverpool 564. At the Cottage Homes, situated at two separate localities in Parramatta, the average number resident was about 410. The State Labour Depot and Refuge at Randwick had 928 inmates during 1919.

(ii) *Benevolent Asylums, Victoria.* Besides the asylums attached to hospitals, there are eight institutions in Victoria. In 1918–19, the average daily number of indoor patients was 1,884, and there were 392 distinct cases of outdoor relief.

(iii) *Benevolent Asylums, Queensland.* There are four institutions in Queensland, with 1,164 beds. The most important of these is at Dunwich (Stradbroke Island) with 1,046 beds, while there are small institutions at Nundah, Rockhampton, and Toowoomba. At the end of 1919 the inmates of the four institutions numbered 1,157.

(iv) *Destitute Asylum, Adelaide.* Outside of hospitals and lunatic asylums the destitute of South Australia are dealt with and relieved at the Destitute Asylum, Adelaide, and at the Aged Men's Home, Beaumont. The former institution includes lying-in and children's departments. In the asylum the number of inmates at the end of 1919 was 352; in the Beaumont Home it was 64.

(v) *Homes for the Destitute, Western Australia.* There are two of these homes in Western Australia supported by public funds. The Old Men's Home at Claremont had 651 inmates at the end of 1919, and the Women's Home, Fremantle, which receives children also, had 82 adult inmates. The children admitted during the year numbered 26.

(vi) *Charitable Establishments, Tasmania.* There are two principal Government charitable establishments in Tasmania. The New Town Infirmary and Consumptive Home, with 220 beds, had 189 inmates at the end of June, 1920, and the Home for Invalids, Launceston, with 24 beds, had 23 inmates on the same date.

4. Orphanages, Industrial Schools, etc.—The organisation of charitable effort varies greatly in regard to orphans and waifs. In many institutions shelter and some form of industrial training are offered to destitute children of all classes, whether orphans or not, while some of those styled orphanages do not confine their relief to orphans strictly so called. The figures in the next table are those for institutions where, it is believed, the principal effort is on behalf of those who are really orphans:—

ORPHANAGES IN COMMONWEALTH, 1915 TO 1919.

Particulars.	1915.	1916.	1917.	1918.	1919.
Number of Institutions	50	48	47	48	49
Admissions	2,376	2,118	1,400	2,679	2,397
Total number of inmates during year ..	4,503	5,061	5,754	7,451	7,330
Deaths	48	35	20	53	69
Expenditure (*a*) .. .. £	93,758	79,526	81,141	114,420	121,305

(*a*) Incomplete. Expenditure is not available for some orphanages.

(i) *New South Wales.* The care of destitute and neglected children is entrusted to the State Children's Relief Board, whose officers are charged with a strict supervision regarding the welfare of the children and the treatment of them by those to whom they are boarded out. Provision is made for instruction in various trades and callings. The number of children under the Board's supervision in 1919–20 was 15,776. The board's expenditure in that year was £257,366, or £16 6s. 3d. per child.

There are also orphanages, farm homes, country homes for children, etc., with upwards of 1,900 children under care.

There are several reformatories and industrial schools maintained by the State. At the Parramatta Industrial School for Girls, to which a Training Home was attached in 1912, there were on 31st December, 1919, 159 inmates. At the Farm Home for boys, Gosford, there were 86 boys at the end of 1919.

(ii) *Victoria.* There are ten orphanages in Victoria, with 1,756 beds. The daily average of the inmates was 1,737 in 1918–19. The expenditure in the same year was £39,990.

At the end of 1919 there were three industrial and five reformatory schools in the State. Of these, one in each class is wholly controlled by the Government, being used merely as a receiving and distributing depot. The children are sent thence to situations, foster homes, or other institutions dealing with State wards. The other schools are under private management, receiving an allowance for State wards. Many of the reformatory children are placed with friends, or licensed out. On 31st December, 1919, the wards of the State numbered 6,131—classed mostly as neglected children. There were also 25 children free from legal control, who, being incapacitated, were maintained by the State. By a Statute of 1919, certain children boarded out to their mothers ceased to be classed as wards of the State, but payments for their maintenance to the mothers continued. At the end of 1919 there were 6,206 such children. The total expenditure for 1919 was £192,096, of which £181,385 was borne by the Government.

(iii) *Queensland.* There are twelve orphanages in Queensland. The number under care on 31st December, 1919, was 1,107, and the expenditure for the year, £25,881.

There are also seven industrial and reformatory schools, which had 122 boys and 57 girls under detention at the end of 1919. The total number of children under State control at the end of 1919 was 7,770. The gross cost was £122,073, of which £113,601 was borne by the Government.

(iv) *South Australia.* The State Children's Department exercises a supervision over the probationary and industrial schools and the reformatories. The total number of admissions into these institutions in 1919–20 was 294. The number of inmates on the 30th June, 1920, was 229, in addition to which 1,614 were placed out, or had been adopted or apprenticed. There were no deaths amongst children in industrial schools and reformatories, and of those placed out and in other institutions nine died. The number of children under State control on 30th June, 1920, was 3,784, including 1,941 placed out with licensed fostermothers. The expenditure for 1919–20 was £42,178.

There are three orphan asylums. The number under care during 1919 was 375, of whom 261 were inmates on 31st December, 1918. There were no deaths during the year, and the expenditure amounted to £1,791.

(v) *Western Australia.* In Western Australia there were, at the end of 1919, four orphanages, four orphanages and industrial schools, and two industrial schools, containing 462 boys and 407 girls. There were also 8 boys and 14 girls at the Government Receiving Depot. The total number of children in charge of the State Children's Department at the end of 1919 was 1,345, and the net cost £26,493.

(vi) *Tasmania.* There are three industrial schools and one orphanage under benevolent institutions in the State. Admissions in 1919–20 numbered 27, and total inmates during the year 160. No deaths occurred. The expenditure was £4,223.

The New Town Training School for boys had 50 inmates at the end of June, 1920.

Under the boarding-out system upwards of 300 children are placed out. The total number of children under State control at the end of June, 1920, was 465, the net cost to the State of children's relief being £8,012.

(vii) *Neglected Children.* The following table summarises the number of neglected children under State Departments. Included in the figures are children boarded out with their own mothers, the numbers being, New South Wales 10,797, Victoria 6,206 Queensland 4,971, South Australia 324, Western Australia 665, Tasmania 4; the total for the Commonwealth being 22,967.

STATE RELIEF OF NEGLECTED CHILDREN.—TRANSACTIONS OF STATE DEPARTMENTS, 1919.

Particulars.	N.S.W.(a)	Vic.	Q'land.	S. Aust. (b)	W. Aust.	Tas. (b)	C'wealth.
Number of Children under State control at end of year—							
Males	(c)	6,458	4,066	1,935	677	234	(d)13,370
Females	(c)	5,904	3,704	1,849	668	231	(d)12,356
Total	15,776	12,362	7,770	3,784	1,345	465	41,502
	£	£	£	£	£	£	£
Gross cost to State of children's relief	257,366	192,096	122,073	42,178	29,643	9,385	652,741
Receipts, from parents' contributions, etc.	6,674	10,711	8,472	4,996	3,150	1,373	35,376
Net cost	250,692	181,385	113,601	37,182	26,493	8,012	617,365

(a) For year ended 5th April following. (b) For the year ended 30th June, 1920. (c) Details not available. (d) Exclusive of New South Wales.

5. Lepers.—Lazarets for the treatment of lepers have been established in New South Wales (Little Bay); Queensland (Peel Island, near Brisbane, and Dayman Island, Torres Strait); and the Northern Territory (Mud Island). Quarantine and isolation stations have also been used for the segregation of patients. Up to 1915, 545 cases of leprosy had been recorded in the Commonwealth. Later figures are not available.

6. Hospitals for the Insane.—The method of compiling insanity statistics has been fairly uniform throughout the States, but the various methods of observing the early stages of the development of insanity introduce an element of uncertainty which considerably reduces the value of comparison. In the total given below, licensed houses (except as regards expenditure) are included in the total for New South Wales and Victoria, but in the latter State the figures are exclusive of reception houses and observation wards in gaols:—

HOSPITALS FOR INSANE, COMMONWEALTH, 1915 TO 1919.

Particulars.	1915.	1916.	1917.	1918.	1919.
Number of institutions(a)	34	35	34	34	35
Number of beds	16,417	16,673	16,808	17,176	17,308
Admissions	3,118	3,268	3,054	3,192	3,323
Discharged as recovered, relieved, etc.	1,491	1,451	1,456	1,406	1,565
Deaths	1,341	1,459	1,306	1,383	1,699
Expenditure £	815,200	861,258	875,963	951,439	1,116,676

(a) Exclusive of receiving wards at general hospitals and including licensed houses for insane in Victoria.

The proportion of insane, as well as the total number returned as under treatment, has changed very little during recent years. In the next table the number of insane under official care in Australia is given, and in the table following, the proportion of insane to population.

The number of insane persons in institutions in Australia at the end of each of the years 1915–1919 was as follows:—

INSANE PERSONS IN THE COMMONWEALTH, 1915 TO 1919.

State.	1915.	1916.	1917.	1918.	1919.
New South Wales	7,063	7,240	7,340	7,581	7,544
Victoria	5,767	5,793	5,833	5,915	5,846
Queensland	2,441	2,517	2,590	2,623	2,703
South Australia	1,137	1,158	1,176	1,153	1,187
Western Australia	1,009	1,045	1,066	1,123	1,148
Tasmania	522	545	570	575	578
Commonwealth	17,939	18,298	18,575	18,970	19,006

For the period embraced in the tables Victoria shews the highest rate of insanity, roughly 1 in 250 persons. It is stated that this is chiefly owing to the proportionately greater number of old persons in that State. On the other hand, in South Australia a considerably lower insanity rate has prevailed, averaging about 1 in 380. Tasmania following closely with an average of about 1 in 370.

PROPORTION OF INSANE PER 1,000 OF THE POPULATION, 1915 TO 1919.

(COMMONWEALTH.)

State.	1915.	1916.	1917.	1918.	1919.
New South Wales	3.78	3.92	3.88	3.92	3.77
Victoria..	4.04	4.15	4.13	4.13	3.91
Queensland	3.55	3.70	3.83	3.78	3.73
South Australia	2.58	2.67	2.70	2.59	2.54
Western Australia ..	3.13	3.38	3.44	3.58	3.46
Tasmania	2.62	2.72	2.80	2.75	2.67
Commonwealth ..	3.62	3.75	3.76	3.78	3.62

Consequent upon the development of a more rational attitude towards the treatment of mental cases, a greater willingness is being shewn to submit afflicted persons to treatment at an earlier stage than formerly. Hence an increase in the number of recorded cases does not necessarily imply an actual increase in insanity. It is important to bear this in mind, because the small progressive increase in the numbers in the first of the immediately preceding tables is probably to be attributed largely, if not solely, to this circumstance.

The leading features in regard to institutions for the care of the insane are given below for 1919 :—

HOSPITALS FOR THE INSANE.—NUMBER, STAFFS, ACCOMMODATION, 1919.

(COMMONWEALTH.)

Particulars.	N.S.W.	Vic.(a)	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Number of Institutions—							
Government	9	9	3	1	3	1	26
Private	3	(b) 5	..	..	1	..	(b) 9
Total	12	14	3	1	4	1	35
Medical Staff—							
Males	22	23	6	3	3	2	59
Females	1	..	1	..	..	..	2
Total	23	23	7	3	3	2	61
Nursing Staff and Attendants—							
Males	626	563	238	91	132	89	1,739
Females	501	529	193	61	72	62	1,418
Total	1,127	1,092	431	152	204	151	3,157
Accommodation—							
Number of dormitories ..	(c) 353	1,421	584	(f)	44	407	(f)
Capacity in cubic feet ..	c3,582,976	3,598,148	1,900,768	(f)	714,714	878,590	(f)
Number of beds	(c) 6,307	5,211	2,660	1,225	1,186	699	17,308
Cubic feet to each bed ..	(d) 600 (e) 1,000	690	709	(f)	605	1,256	(f)

(a) Exclusive of Receiving House, Royal Park, and of the Receiving Wards at Bendigo and Geelong Hospitals. (b) There are five private licensed houses in Victoria, in which there were 91 cases at end of 1919. Complete figures for these private asylums are not available. (c) Government hospitals only. (d) Ordinary dormitory. (e) Hospital dormitory. (f) Information not available.

HOSPITALS FOR THE INSANE.—PATIENTS TREATED, 1919.

Particulars.	N.S.W.	Vic. (a)	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Admissions and re-admissions during year—							
Males	830	384	305	163	130	63	1,875
Females	654	361	193	122	74	44	1,448
Total	1,484	745	498	285	204	107	3,323
Discharges—Recovered—							
Males	278	83	102	61	34	16	574
Females	277	109	100	32	21	14	553
Total	555	192	202	93	55	30	1,127
Relieved and unrelieved—							
Males	89	69	13	29	6	11	217
Females	70	98	5	35	4	9	221
Total	159	167	18	64	10	20	438
Absconders not retaken—							
Males	8	7	..	..	3	..	19
Females	1	..	..	..	..	..	..
Total	9	7	..	..	3	..	19
Deaths—							
Males	513	259	138	51	76	23	1,060
Females	285	189	60	43	31	31	639
Total	798	448	198	94	107	54	1,699
Number of patients on books at end of year—							
Males	4,336	2,855	1,728	662	795	290	10,666
Females	3,208	2,091	975	525	353	288	8,340
Total	7,544	5,846	2,703	1,187	1,148	578	19,006
Average daily number resident—							
Males	4,216	2,598	1,711	655	786	282	10,248
Females	2,927	2,589	945	523	341	293	7,618
Total	7,143	5,187	2,656	1,178	1,127	575	17,866
Number of patients on books at end of year per 1,000 of population—							
Males	4.28	3.85	4.56	2.95	4.49	2.58	4.03
Females	3.23	3.96	2.82	2.16	2.28	2.76	3.21
Persons	3.77	3.91	3.73	2.54	3.46	2.67	3.62
Average number of patients resident in hospitals for insane per 1,000 of mean population—							
Males	4.28	3.65	4.65	3.05	4.65	2.61	4.00
Females	2.98	3.44	2.74	2.17	2.21	2.84	2.95
Persons	3.63	3.54	3.73	2.58	3.48	2.72	3.47

(a) Exclusive of inmates of the Receiving House, Royal Park, and of Receiving Wards attached to the hospitals at Bendigo and Geelong, and of five private licensed houses.

In some of the States it is the practice to allow persons well advanced towards recovery to leave the institutions and reside with their relatives or friends, but they are nevertheless under supervision of the asylum authorities and are kept on the books. The figures for admission, etc., include absconders captured and readmitted. Very few escapees succeed in avoiding capture.

The revenue of Government asylums is small in comparison with their cost, and consists chiefly of patients' fees. The proportion of expenditure borne by the State amounts to about 88 per cent.

HOSPITALS FOR THE INSANE (GOVERNMENT ONLY), REVENUE AND EXPENDITURE, 1919.

Particulars.	N.S.W.	Victoria.	Q'land.	S.-Aust.	W. Aust.	Tasmania.	C'wealth.
Revenue (exclusive of Government Grants)—	£	£	£	£	£	£	£
Fees of patients..	52,894	27,784	12,675	15,070	7,120	5,523	121,066
Other ..	3,028	5,837	1,524	564	1,073	129	12,155
Total	55,922	33,621	14,199	15,634	8,193	5,652	133,221
Expenditure—							
Salaries	201,535	143,420	83,771	21,797	34,284	17,678	502,485
Maintenance	207,809	161,746	83,970	38,345	30,294	30,172	552,336
Buildings	..	15,717	18,884	..	..	1,035	35,636
Other ..	20,167	4,366	892	658	..	136	26,219
Total	*429,511*	*325,249*	*187,517*	*60,800*	*64,578*	*49,021*	*1,116,676*

(i) *New South Wales.* The latest return available shews that the average length of residence in the hospitals of persons who died was 4 years 8 months for males and 5 years 9 months for females; and that of persons who were discharged was 1 year 2 months for males and 1 year 7 months for females.

There are also two State reception houses, where suspected persons are confined for observation, being subsequently either discharged or transferred to lunatic asylums. In two of the gaols observation wards have been instituted, with similar functions.

(ii) *Victoria.* The average residence in the hospitals of those who died was 8 years 3 months for males and 12 years 11 months for females; that of those discharged, 1 year 3 months for males and 1 year 9 months for females.

There are lunacy wards in two of the general hospitals; also a State receiving house where persons are placed for observation, and subsequently discharged or transferred to asylums.

(iii) *Queensland.* The average residence in the institutions of those who died was 8 years 1 month for males and 9 years and 10 months for females; and of those who were discharged, 11 months for males and 1 year for females.

There are also three reception houses for insane, which act as depots to which patients are sent with a view to determining whether their mental illness is of a merely temporary character, easily relieved, or is of such a nature as to need further treatment at the State asylums.

(iv) *South Australia.* The average residence of those who died was 5 years and 2 months for males and 6 years 2 months for females; of those discharged, 1 year and 7 months for males and 1 year and 1 month for females.

(v) *Western Australia.* The period of residence of those who died during the year averaged 6 years 11 months for males and 5 years 8 months for females; of those who were discharged, 11 months for males and 1 year 2 months for females.

(vi) *Tasmania.* The period of residence of those who died was 3 years 10 months for males and 13 years 5 months for females; that of those discharged, 11 months for males and 18 months for females.

(vii) *Causes of Insanity.* The proportion of causes of insanity to the total of ascertained causes in Australia in the five years 1915–19 shews that hereditary influences have been the chief factor, more than one-fifth of the total ascertained causes coming under this head. Domestic troubles, adverse circumstances, etc., have also been a fruitful source. Cases due to intemperance in drink range from one in nine to one in twelve.

PROPORTION OF ASCERTAINED CAUSES, ETC., OF INSANITY, COMMONWEALTH, 1915 TO 1919.

Causes, Previous History, etc.	1915.	1916.	1917.	1918.	1919.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Domestic trouble, adverse circumstances, mental anxiety ..	10.6	9.6	9.7	9.9	8.4
Intemperance in drink.. ..	11.6	10.3	10.5	10.2	8.7
Hereditary influence, ascertained; congenital defect, ascertained..	22.9	22.4	21.8	22.1	21.1
Pregnancy, lactation, parturition and puerperal state, uterine and ovarian disorders, puberty, change of life	7.1	5.1	6.0	4.9	5.8
Previous attacks	13.0	14.9	14.1	14.6	12.4
Accident, including sunstroke ..	1.7	1.8	1.9	1.5	1.8
Old age	8.2	10.0	9.8	9.4	8.1
Other causes ascertained ..	24.9	25.9	26.2	27.4	33.7
All ascertained causes ..	100.0	100.0	100.0	100.0	100.0

7. **Treatment of Inebriates.**—The treatment of inebriates is referred to in the section dealing with Public Justice hereinbefore. (See page 821.)

8. **Protection of Aborigines.**—For the protection of the aboriginal Australian race there are institutions, under the supervision of Aborigines Boards, where the blacks are housed and encouraged to work, the children receiving elementary education. The work is usually carried on at mission stations, but many of the natives are nomadic in habit of life, and receive food and clothing when they call, whilst others but rarely come under the notice of the Boards. The native race is extinct in Tasmania. The estimated average annual expenditure on maintenance, &c., for the last five years was—New South Wales, £25,000; Victoria, £4,000; Queensland, £21,000; South Australia, £21,000; Western Australia, £26,000; Northern Territory, £3,000; total for Commonwealth, £100,000. In New South Wales the average number receiving monthly aid in 1919 was 2,582; in Victoria there are about 300 under the care of the Aborigines Protection Board; in Queensland, at the end of 1919, there were 2,705 aborigines at the mission stations; in South Australia, there were 777 inmates at mission stations, while in Western Australia the aborigines and half-castes in the native institutions numbered 384. At the mission stations in the Northern Territory about 300 were in residence, but casual assistance and medical attendance are given to large numbers of natives every year.

9. **Royal Life Saving Society.**—In each of the State capitals, "centres" of the Royal Life Saving Society have been established. Life preservation is the object of the Society, and its immediate aims are (*a*) educative and (*b*) remedial. By stimulating the acquirement of the art of swimming in schools, colleges, clubs, etc., it is desired to bring about a widespread and thorough knowledge of natation and life-saving; while life-belts, reels, lines, and other first-aid appliances are provided on ocean beaches and at places where they are likely to be in demand. Upwards of 3,000 certificates of proficiency in various grades are annually issued after examination.

10. **Royal Humane Society.**—The Royal Humane Society of Australasia has for its objects (*a*) to grant awards for skill, promptness, and perseverance in life saving; (*b*) to provide assistance in cases of danger and apparent death; (*c*) to restore the apparently drowned; (*d*) to collect and circulate the latest information regarding approved methods and apparatus for life saving. Awards of medals and certificates are made numbering about 100 annually. Upwards of 350 lifebuoys have been provided at various places on the coasts, rivers, lakes, and reservoirs in the various States. Swimming is encouraged amongst school children, and awards are made for proficiency.

11. **Other Charitable Institutions.**—Owing to variety of name and function of other charitable institutions it has been found impracticable to give detailed results. The aid given in kind—food, clothing, tools of trade, etc.—is considerable, whilst the shelter and treatment afforded range from a bed for a night for casual callers in establishments ministering minor charity, to indoor treatment over long periods in those that exist for the relief of the aged and infirm. The institutions not so particularised include asylums for the deaf, dumb, and blind, maternity institutions and infant homes, homes for the destitute and aged poor, industrial colonies, night shelters, crèches, homes of hope, rescue homes, free kindergarten and ragged schools, auxiliary medical charities, free dispensaries, benevolent societies and nursing systems, ambulance and health societies, boys' brigades, humane and animals' protection societies, prisoners' aid associations, shipwreck relief societies, bush fires and mining accident relief funds, etc.

12. **State Expenditure on Charities.**—The table below gives the amount expended by Government on charities in each of the last five years, the figures for the various States being compiled, as far as possible, on the same basis :—

STATE EXPENDITURE ON CHARITIES, 1915 TO 1919.

State or Territory.	1915.	1916.	1917.	1918.	1919.
	£	£	£	£	£
New South Wales ..	779,303	876,767	863,713	962,901	1,148,360
Victoria..	541,668	525,682	543,225	541,817	578,055
Queensland	307,899	324,143	372,342	417,743	516,944
South Australia	167,272	162,849	191,748	166,250	195,687
Western Australia ..	228,064	247,589	178,477	249,361	289,404
Tasmania	78,092	79,494	88,445	95,867	121,371
Northern Territory ..	4,864	5,649	4,488	4,156	6,178
Commonwealth ..	2,107,162	2,222,173	2,242,438	2,438,095	2,855,999

13. **Total Charitable Expenditure.**—The expenditure in the Commonwealth in money on hospitals, charities, and all forms of relief publicly given, comprising the amounts furnished by Government and those raised by public subscription, etc., but excluding old-age pensions, exceeds £4,600,000 annually.

SECTION XXV.

GENERAL GOVERNMENT.

§ 1. Scheme of Parliamentary Government.

1. **General.**—The legislative power of the Commonwealth is vested in the Federal Parliament, which consists of the Sovereign, the Senate, and the House of Representatives. The Sovereign is represented throughout the Commonwealth by the Governor-General, who, subject to the Constitution of the Commonwealth, has such powers and functions as the Sovereign is pleased to assign to him. In each State there is a State Governor, who is the representative of the Sovereign for the State, and who exercises such powers within the State as are conferred upon him by the Letters Patent which constitute his office, and by the instructions, which inform him in detail of the manner in which his duties are to be fulfilled. The Legislature in each State is also bi-cameral, and consists of (a) a Legislative Council and (b) a Legislative Assembly, or House of Assembly, the legislative powers of these chambers being delimited by the Commonwealth and the State Constitutions. The latter chamber, which is the larger, is always elective; the qualification for the franchise varies in character. The former chamber is, in the case of New South Wales and Queensland, nominated by the Governor-in-Council, but in the other States it is elective, the constituencies being differently arranged and some property or special qualification for the electorate being required. In the Federal Parliament, however, the qualifications for the franchise are identical for both Houses. A brief account of the constitutional history of each of the States was given in previous issues of this book (see especially Year Book No. 4, pp. 27 to 32).

2. **Number of Members of the Legislatures.**—The following table shews the number of members in each of the legislative chambers in the Commonwealth and in each State at 1st August, 1921:—

MEMBERS OF PARLIAMENT OF AUSTRALIA, 1921.

Members in—	C'wealth.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Total.
Upper House ..	36	68	34	59	20	30	18	265
Lower House ..	75	90	65	72	46	50	30	428
Total	111	158	99	131	66	80	48	693

The use of the expressions "Upper House" and "Lower House" in the above statement, though not justified constitutionally, is convenient, inasmuch as the legislative chambers are known by different names in the Commonwealth and in some of the States.

In the Commonwealth Parliament the Upper House is known as the Senate, and in the State Parliaments as the Legislative Council. The Lower House is known as follows :—In the Commonwealth Parliament as the House of Representatives, in the State Parliaments of New South Wales, Victoria, Queensland, and Western Australia as the Legislative Assembly, and in the State Parliaments of South Australia and Tasmania as the House of Assembly.

3. **The Cabinet and Executive Government.**—The Sections of the Commonwealth Constitution Act dealing with the Executive Government will be found on page 18 hereinbefore. In both the Commonwealth and the State Legislatures the forms of government have been founded on their prototypes in the Imperial Government, and the relations established between the Ministry and the representatives of the people are in accordance with those prevailing in Great Britain. The executive powers in the Commonwealth and in the State Governments are vested in the Governor-in-Council. The Executive Council in the Commonwealth and in the majority of the States is practically co-extensive with a group of departmental chiefs, who are usually spoken of as the Cabinet, and who change with the rise and fall of party majorities. In the Commonwealth Government, however, as well as in the States of Victoria and Tasmania, the Cabinet on leaving office remain members of the Executive Council, though they no longer attend its meetings, and it is in fact an essential feature of the Cabinet system of Government that they should not do so, except to assist the Governor in transacting purely formal business, or to advise on non-political questions.

(i) *The Executive Council.* This body is composed of the Governor and the Ministers of State holding office for the time being. The latter are sworn both as Executive Councillors and as Ministers controlling the different administrative departments. It should be observed that all persons living who have held Ministerial office under former Governments are also technically members of the Executive Council, and are thus liable to be specially summoned for attendance at meetings of that body. The meetings are official in character; they are presided over by the Governor-General (or Governor) and are attended by the clerk, who keeps a formal record of the proceedings. At these meetings the decisions of the Cabinet are put into official form and made effective, appointments are confirmed, resignations accepted, proceedings ordered, and notices and regulations published.

The official members of the Executive Council in August, 1921, have been previously specified (see page 30). In addition, all living members of past Ministries (see following pages) are technically liable to be officially summoned to attend meetings of the Executive Council.

Particulars of previous Commonwealth Ministries are given on pages 27 to 30 hereinbefore.

(ii) *The Cabinet.* The meetings of this body are private and deliberative. No one is admitted but the actual Ministry of the day, no records of the meetings transpire, and no official notice is taken of the proceedings. The members of the Cabinet, being the leaders of the party in power in Parliament, control the bent of legislation, and must retain the confidence of the people and also of the Governor-General (or Governor), to whom they act as an advising body. They also in effect wield, by virtue of their seats on the Executive Council, the whole executive force of the community. In summoning, proroguing, or dissolving Parliament, the Governor-General (or Governor) is usually guided by the advice tendered him by the Cabinet, though legally in no way bound to accept such advice. The following statement gives the names of the Ministers of State for the Commonwealth who have held office since the inauguration of the Commonwealth Government :—

MINISTERS OF STATE FOR THE COMMONWEALTH OF AUSTRALIA FROM 1st JANUARY, 1901, to OCTOBER, 1921.

HOME AND TERRITORIES.
(Prior to 14/11/16 known as External Affairs).

Name.	From—	To—
Rt. Hon. E. BARTON, P.C., K.C. (a) (b)	1/1/01	23/9/03
Hon. A. DEAKIN (a)	23/9/03	26/4/04
Hon. W. M. HUGHES (k)	26/4/04	17/8/04
Rt. Hon. G. H. REID, P.C., K.C. (a) (g)	17/8/04	4/7/05
Hon. A. DEAKIN (a)	4/7/05	12/11/08
Hon. E. L. BATCHELOR	12/11/08	2/6/09
Hon. L. E. GROOM	2/6/09	29/4/10
Hon. E. L. BATCHELOR	29/4/10	f 8/10/11
Hon. J. THOMAS	14/10/11	24/6/13
Hon. P. McM. GLYNN, K.C.	24/6/13	17/9/14
Hon. J. A. ARTHUR	17/9/14	f 9/12/14
Hon. HUGH MAHON	14/12/14	14/11/16
Hon. F. W. BAMFORD	14/11/16	17/2/17
Hon. P. McM. GLYNN, K.C.	17/2/17	3/2/20
Hon. A. POYNTON	4/2/20	(e)

TRADE AND CUSTOMS.

Name.	From—	To—
Rt. Hon. C. C. KINGSTON, P.C., K.C.	1/1/01	24/7/03
Hon. Sir W. J. LYNE, K.C.M.G.	7/8/03	26/4/04
Hon. A. FISHER (h)	26/4/04	17/8/04
Hon. A. McLEAN	17/8/04	4/7/05
Hon. Sir W. J. LYNE, K.C.M.G.	4/7/05	29/7/07
Hon. A. CHAPMAN	29/7/07	12/11/08
Hon. F. G. TUDOR	12/11/08	2/6/09
Hon. Sir R. W. BEST, K.C.M.G.	2/6/09	29/4/10
Hon. F. G. TUDOR	29/4/10	24/6/13
Hon. L. E. GROOM	24/6/13	17/9/14
Hon. F. G. TUDOR	17/9/14	14/9/16
Rt. Hon. W. M. HUGHES, P.C.	29/9/16	14/11/16
Hon. W. O. ARCHIBALD	14/11/16	17/2/17
Hon. J. A. JENSEN	17/2/17	13/12/18
Hon. W. A. WATT (n)	13/12/18	17/1/19
Hon. W. M. GREENE	17/1/19	(e)

ATTORNEY-GENERAL.

Name.	From—	To—
Hon. A. DEAKIN	1/1/01	23/9/03
Hon. J. G. DRAKE	23/9/03	26/4/04
Hon. H. B. HIGGINS, K.C.	26/4/04	17/8/04
Hon. Sir J. H. SYMON, K.C.M.G., K.C.	17/8/04	4/7/05
Hon. I. A. ISAACS	4/7/05	11/10/06
Hon. L. E. GROOM	11/10/06	12/11/08
Hon. W. M. HUGHES (k)	12/11/08	2/6/09
Hon. P. M. GLYNN	2/6/09	29/4/10
Hon. W. M. HUGHES (k)	29/4/10	24/6/13
Hon. W. H. IRVINE, K.C. (j)	24/6/13	17/9/14
Hon. W. M. HUGHES (a) (k)	17/9/14	(e)

TREASURER.

Name.	From—	To—
Rt. Hon. Sir G. TURNER, P.C., K.C.M.G.	1/1/01	26/4/04
Hon. J. C. WATSON (a)	26/4/04	17/8/04
Rt. Hon. Sir G. TURNER, P.C., K.C.M.G.	17/8/04	4/7/05
Rt. Hon. Sir J. FORREST, P.C., G.C.M.G. (l)	4/7/05	29/7/07
Hon. Sir W. J. LYNE, K.C.M.G.	29/7/07	12/11/08
Hon. A. FISHER (a) (h)	12/11/08	2/6/09
Rt. Hon. Sir J. FORREST, P.C., G.C.M.G. (l)	2/6/09	29/4/10
Rt. Hon. A. FISHER, P.C. (a)	29/4/10	24/6/13
Rt. Hon. Sir J. FORREST, P.C., G.C.M.G. (l)	24/6/13	17/9/14
Rt. Hon. A. FISHER, P.C. (a)	17/9/14	27/10/15
Hon. W. G. HIGGS	27/10/15	27/10/16
Hon. A. POYNTON	24/11/16	17/2/17
Rt. Hon. Sir J. FORREST, P.C., G.C.M.G. (l)	17/2/17	27/3/18
Hon. W. A. WATT (n)	27/3/18	15/6/20
Rt. Hon. Sir JOSEPH COOK, P.C., G.C.M.G.	28/7/20	(e)

WORKS AND RAILWAYS.
(Prior to 14/11/16 known as Home Affairs).

Name.	From—	To—
Hon. Sir W. J. LYNE, K.C.M.G.	1/1/01	7/8/03
Rt. Hon. Sir J. FORREST, P.C., G.C.M.G. (l)	7/8/03	26/4/04
Hon. E. L. BATCHELOR	26/4/04	17/8/04
Hon. D. THOMSON	17/8/04	4/7/05
Hon. L. E. GROOM	4/7/05	11/10/06
Hon. T. T. EWING (c)	11/10/06	23/1/07
Hon. J. H. KEATING	23/1/07	12/11/08
Hon. H. MAHON	12/11/08	2/6/09
Hon. G. W. FULLER	2/6/09	29/4/10
Hon. K. O'MALLEY	29/4/10	24/6/13
Hon. JOSEPH COOK (a) (i)	24/6/13	17/9/14
Hon. W. O. ARCHIBALD	17/9/14	27/10/15
Hon. K. O'MALLEY	27/10/15	14/11/16
Hon. P. J. LYNCH	14/11/16	17/2/17
Hon. W. A. WATT (n)	17/2/17	27/3/18
Hon. L. E. GROOM	27/3/18	(e)

DEFENCE.

Name.	From—	To—
Hon. Sir J. R. DICKSON, K.C.M.G.	1/1/01	f 10/1/01
Rt. Hon. Sir J. FORREST, P.C., G.C.M.G. (l)	17/1/01	7/8/03
Hon. J. G. DRAKE	7/8/03	23/9/03
Hon. A. CHAPMAN	23/9/03	26/4/04
Hon. A. DAWSON	26/4/04	17/8/04
Hon. J. W. McCAY (m)	17/8/04	4/7/05
Hon. T. PLAYFORD	4/7/05	23/1/07
Hon. Sir T. T. EWING, K.C.M.G.	23/1/07	12/11/08
Hon. G. F. PEARCE	12/11/08	2/6/09
Hon. J. COOK (i)	2/6/09	29/4/10
Hon. G. F. PEARCE	29/4/10	24/6/13
Hon. E. D. MILLEN	24/6/13	17/9/14
Hon. G. F. PEARCE	17/9/14	(e)

(a) Prime Minister. (b) Afterwards the Rt. Hon. Sir E. Barton, P.C., G.C.M.G., etc. (c) Afterwards the Hon. Sir T. T. Ewing, K.C.M.G. (d) Afterwards the Hon. Sir N. E. Lewis, K.C.M.G. (e) Still in office. (f) Died while holding office. (g) Afterwards the Rt. Hon. Sir G. H. Reid, P.C., G.C.M.G. (h) Afterwards the Rt. Hon. A. Fisher, P.C. (i) Afterwards the Rt. Hon. Sir J. Cook, P.C., G.C.M.G. (j) Afterwards the Hon. Sir W. H. Irvine, K.C.M.G., K.C. (k) Afterwards the Rt. Hon. W. M. Hughes, P.C. (l) Afterwards Lord Forrest of Bunbury. (m) Afterwards the Hon. Sir J. W. McCay, K.C.M.G. (n) Afterwards the Rt. Hon. W. A. Watt, P.C.

MINISTERS OF STATE FOR THE COMMONWEALTH OF AUSTRALIA FROM 1ST JANUARY, 1901, TO OCTOBER, 1921—*continued.*

POSTMASTER-GENERAL.

Name.	From—	To—
Rt. Hon. Sir JOHN FORREST, P.C., G.C.M.G. (*l*) ..	1/1/01	17/1/01
Hon. J. G. DRAKE ..	5/2/01	7/8/03
Hon. Sir P. O. FYSH, K.C.M.G.	7/8/03	26/4/04
Hon. H. MAHON ..	26/4/04	17/8/04
Hon. S. SMITH	17/8/04	4/7/05
Hon. A. CHAPMAN ..	4/7/05	29/7/07
Hon. S. MAUGER ..	29/7/07	12/11/08
Hon. J. THOMAS ..	12/11/08	2/6/09
Hon. Sir J. QUICK ..	2/6/09	29/4/10
Hon. J. THOMAS ..	29/4/10	14/10/11
Hon. C. E. FRAZER ..	14/10/11	24/6/13
Hon. AGAR WYNNE ..	24/6/13	17/9/14
Hon. W. G. SPENCE ..	17/9/14	27/10/15
Hon. W. WEBSTER ..	27/10/15	3/2/20
Hon. G. H. WISE ..	4/2/20	(*e*)

VICE-PRESIDENT OF THE EXECUTIVE COUNCIL.

Name.	From—	To—
Hon. R. E. O'CONNOR, K.C.	1/1/01	23/9/03
Hon. T. PLAYFORD ..	23/9/03	26/4/04
Hon. G. MCGREGOR ..	26/4/04	17/8/04
Hon. J. G. DRAKE ..	17/8/04	4/7/05
Hon. T. T. EWING (*c*) ..	4/7/05	11/10/06
Hon. J. H. KEATING ..	11/10/06	19/2/07
Hon. Sir R. W. BEST, K.C.M.G.	19/2/07	12/11/08
Hon. G. MCGREGOR ..	12/11/08	2/6/09
Hon. E. D. MILLEN ..	2/6/09	29/4/10
Hon. G. MCGREGOR ..	29/4/10	24/6/13
Hon. J. H. MCCOLL ..	24/6/13	17/9/14
Hon. A. GARDINER ..	17/9/14	27/11/16
Hon. W. G. SPENCE ..	27/11/16	17/2/17
Hon. E. D. MILLEN ..	17/2/17	16/11/17
Hon. L. E. GROOM ..	16/11/17	27/3/18
Hon. E. J. RUSSELL ..	27/3/18	(*a*)

THE NAVY.

Name.	From—	To—
Hon. J. A. JENSEN ..	12/7/15	17/2/17
Rt. Hon. J. COOK, P.C. (*i*)	17/2/17	28/7/20
Hon. W. H. LAIRD SMITH	28/7/20	(*e*)

REPATRIATION.

Name.	From—	To—
Hon. E. D. MILLEN ..	28/9/17	(*e*)

HEALTH.

Name.	From—	To—
Hon. W. M. GREENE ..	10/3/21	(*e*)

WITHOUT PORTFOLIO.

Name.	From—	To—	Name.	From—	To—
Hon. N. E. LEWIS (*d*) ..	1/1/01	23/4/01	Hon. W. H. KELLY ..	24/6/13	17/9/14
Hon. Sir P. O. FYSH, K.C.M.G.	23/4/01	7/8/03	Hon. H. MAHON ..	17/9/14	14/12/14
			Hon. J. A. JENSEN ..	17/9/14	12/7/15
Hon. J. H. KEATING ..	5/7/05	11/10/06	Hon. E. J. RUSSELL ..	17/9/14	27/3/18
Hon. S. MAUGER ..	11/10/06	29/7/07	Hon. W. H. LAIRD SMITH	14/11/16	17/2/17
Hon. J. H. COOK ..	28/1/08	12/11/08	Hon. L. E. GROOM ..	17/2/17	16/11/17
Hon. J. HUTCHISON ..	12/11/08	2/6/09	Hon. A. POYNTON ..	26/3/18	4/2/20
Hon. A. DEAKIN (*a*) ..	2/6/09	29/4/10	Hon. G. H. WISE ..	26/3/18	4/2/20
Col. Hon. J. F. G. FOXTON, C.M.G.	2/6/09	29/4/10	Hon. W. M. GREENE ..	26/3/18	17/1/19
			Hon. R. B. ORCHARD ..	26/3/18	31/1/19
Hon. E. FINDLEY ..	29/4/10	24/6/13	Hon. Sir G. de L. RYRIE, K.C.M.G., C.B. ..	4/2/20	(*e*)
Hon. C. E. FRAZER ..	29/4/10	14/10/11	Hon. W. H. LAIRD SMITH	4/2/20	28/7/20
Hon. E. A. ROBERTS ..	23/10/11	24/6/13	Hon. A. S. RODGERS ..	28/7/20	(*e*)
Hon. J. S. CLEMONS ..	24/6/13	17/9/14			

See notes on previous page.

(iii) *Constitution of Ministries.* The subjoined table shews the constitution of the Ministries in the Commonwealth and the State Governments in October, 1921 :—

CONSTITUTION OF MINISTRIES, 1921.

Ministers with Seats in—	C'wealth.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	Total.
The Upper House ..	3	2	3	1	2	1	2	14
The Lower House ..	9	11	8	9	4	5	5	51
Total	12	13	11	10	6	6	7	65

The names of the members of the Ministries in each State in October, 1921, are shewn in the following statement :—

MEMBERS OF STATE GOVERNMENT MINISTRIES, 1921.

NEW SOUTH WALES.—MINISTRY.

Premier—
*HON. JOHN STOREY.

Colonial Secretary and Minister of Housing—
HON. JAMES DOOLEY.

Treasurer—
HON. J. T. LANG.

Attorney-General—
HON. E. A. MCTIERNAN.

Secretary for Lands and Minister of Forests—
HON. P. F. LOUGHLIN.

Secretary for Public Works and Minister of Railways—
HON. J. ESTELL.

Minister of Public Instruction and Local Government—
HON. T. D. MUTCH.

Secretary for Mines and Minister of Labour and Industry—
HON. G. CANN.

Minister of Agriculture—
HON. W. F. DUNN.

Minister of Public Health and Motherhood—
HON. J. J. G. MCGIRR.

Solicitor-General—
HON. R. SPROULE, M.L.C.

Vice-President of the Executive Council—
HON. E. J. KAVANAGH, M.L.C.

Minister for Justice—
HON. W. J. MCKELL.

* Died on 5th October, 1921. Succeeded on 8th October by Hon. James Dooley, and the Ministry was reconstructed, Mr Dooley remaining Colonial Secretary. A new portfolio of State Industrial Enterprises was created, and allotted to Mr. Lazzarini. Other minor alterations were also made.

VICTORIA.—MINISTRY.

Premier and Minister of Agriculture and of Water Supply—
HON. H. S. W. LAWSON.

Treasurer—
HON. W. M. MCPHERSON.

Attorney-General and Solicitor-General—
HON. A. ROBINSON, C.M.G., M.L.C.

Minister of Public Instruction and of Labour and of Forests—
HON. SIR A. J. PEACOCK, K.C.M.G.

Commissioner of Public Works—
HON. F. G. CLARKE, M.L.C.

Minister of Railways and Mines—
HON. S. BARNES.

Chief Secretary and Minister of Public Health—
MAJOR THE HON. M. BAIRD.

Commissioner of Crown Lands and Survey—
HON. D. S. OMAN.

Ministers without Portfolio—
HON. J. MCWHAE, M.L.C.
HON. H. ANGUS.
HON. J. W. PENNINGTON.

QUEENSLAND.—MINISTRY.

Premier and Chief Secretary—
HON. E. G. THEODORE.

Treasurer, Secretary for Public Works, and Attorney-General—
HON. J. A. FIHELLY.

Home Secretary—
HON. W. MCCORMACK.

Secretary for Public Lands—
HON. J. H. COYNE.

Secretary for Railways—
HON. J. LARCOMBE.

Secretary for Public Instruction—
HON. J. HUXHAM.

Secretary for Mines—
HON. A. J. JONES, M.L.C.

Secretary for Agriculture and Stock—
HON. W. N. GILLIES.

Attorney-General—
HON. J. MULLAN.

Secretary for Public Works—
HON. W. F. SMITH.

SOUTH AUSTRALIA.—MINISTRY.

Premier and Attorney-General—
HON. H. N. BARWELL.

Treasurer and Minister for Education—
HON. G. RITCHIE.

Commissioner of Crown Lands and Immigration and Minister of Repatriation—
HON. G. R. LAFFER.

Chief Secretary and Minister of Marine—
HON. J. G. BICE, M.L.C.

Commissioner of Public Works and Minister of Railways and of Industry—
HON. W. HAGUE.

Minister of Agriculture, Irrigation, and Mines—
HON. T. PASCOE, M.L.C.

WESTERN AUSTRALIA.—MINISTRY.

Premier, Colonial Treasurer, and Minister for Lands and Repatriation—
HON. SIR JAMES MITCHELL, K.C.M.G.

Minister for Education, North-West Territory, and Justice—
HON. H. P. COLEBATCH, M.L.C.

Minister for Works, Trading Concerns, and for Water Supply—
HON. W. J. GEORGE, C.M.G.

Minister for Mines, Railways, Police, Industries, and Woods and Forests—
HON. J. SCADDAN.

Colonial Secretary and Minister for Public Health—
HON. F. T. BROUN.

Minister for Agriculture—
HON. H. K. MALEY.

TASMANIA.—MINISTRY.

Premier and Chief Secretary and Minister for Education—
HON. W. H. LEE, Kt.

Attorney-General and Minister for Railways—
HON. W. B. PROPSTING, C.M.G., M.L.C.

Treasurer and Minister for Mines—
HON. SIR N. E. LEWIS, K.C.M.G.

Minister for Works and Agriculture—
HON. J. B. HAYES.

Minister for Lands—
HON. A. HEAN, C.M.G.

Ministers without Portfolio—
HON. T. SHIELDS, M.L.C.
HON. H. HAYS.

4. **The Appointment of Ministers and of Executive Councillors.**(a)—Although it is technically possible for the Governor to make and unmake cabinets at his pleasure, under all ordinary circumstances his apparent liberty in choosing his Executive Council is virtually restricted by the operation of constitutional machinery. When a Ministry is defeated in Parliament or at the polls, the procedure both in the Commonwealth and the State Parliaments generally, though not invariably, follows that prevailing in the Imperial Parliament. The customary procedure in connexion with the resignation or acceptance of office by a Ministry is described fully in previous issues of the Year Book. (See No. 6, page 942.)

5. **Enactments of the Parliament.**—In the Commonwealth, all laws are enacted in the name of the Sovereign, the Senate, and the House of Representatives. The subjects with respect to which the Commonwealth Parliament is empowered to make laws are enumerated in the Constitution Act (see pp. 15 and 16 hereinbefore). In the States, laws are enacted in the name of the Sovereign by and with the consent of the Legislative Council and Legislative Assembly or House of Assembly. The Governor-General or the State Governor acts as Viceroy as regards giving the Royal Assent to or vetoing Bills passed by the Legislatures, or reserving them for the special consideration of the Sovereign. In the States, the Councils and Assemblies are empowered generally, subject to the Commonwealth Constitution, to make laws in and for their respective States, in all cases whatsoever. Subject to certain limitations, they may alter, repeal, or vary their Constitution. Where a law of a State is inconsistent with a law of the Commonwealth the latter prevails, and the former is, to the extent of the inconsistency, invalid.

(a) See Jenks' "Government of Victoria," pp. 269 et seq.

6. Powers and Functions of the Governor-General and of the Governors.—The Governor-General and the State Governors act under the authority of the Commissions by which they are appointed and the Letters Patent under the Great Seal of the United Kingdom, and according to instructions issued by the Colonial Office and passed under the Royal Sign Manual and Signet.

The office of Governor-General and Commander-in-Chief of the Commonwealth was constituted by Letters Patent issued on the 29th October, 1900, in pursuance of the provisions of the Commonwealth Constitution Act (see page 9 hereinbefore). The powers and duties of the Governor-General were further defined by Royal instructions issued on the same date. The principal and most important of his functions, legislative as well as executive, are expressly conferred upon him by the terms of the Constitution itself. He is the custodian of the Great Seal of the Commonwealth, and has the appointment of political officers to administer Departments of State of the Commonwealth.

His legislative functions are exercised with respect to proposed laws as finally passed by the Federal Houses of Parliament. Such Bills are presented to the Governor-General for his assent in the King's name, on receiving which they become law throughout the Commonwealth. The Governor-General may, however, withhold his assent, or may reserve any Bill for the King's pleasure. He may return to the House in which it originated any proposed law with suggested amendments. The King may disallow any law within one year from the date on which it was assented to by the Governor-General.

The Governor-General's executive functions are, under ordinary circumstances, exercised on the advice of his responsible Ministers. Various specific powers are vested in him by the Constitution; he may summon or prorogue Parliament and may dissolve the House of Representatives. He is the Commander-in-Chief of the military and naval forces of the Commonwealth, and is invested by the Crown with the prerogative of mercy in cases of offences committed against the laws of the Commonwealth.

The Governor-General is also invested with authority in certain matters of Imperial interest, such as the control of the naval and military forces of the Commonwealth; the observance of the relations of foreign States to Great Britain, so far as they may be affected by the indirect relations of such States to the Commonwealth; and the treatment of neutral and belligerent ships in Commonwealth waters in time of war.

The Governor-General may not leave the Commonwealth without having first obtained leave from the Imperial Government, to whom alone he is responsible for his official acts.

The powers and functions of the State Governors are, within their respective States, very similar to those exercised by the Governor-General for the Commonwealth, and are defined by the terms of their Commissions and by the Royal instructions accompanying the same. A State Governor is the official head of the State Legislature, and assents in the name of the Crown to all Bills passed by the Parliament, except those reserved for the Royal Assent. The latter include certain classes of Bills, which are regulated by the Constitution Acts and by the instructions issued by the Imperial Government. The Governors are, under ordinary circumstances, guided by their Executive Councils, the chief matters in which the exercise of discretion is required being the granting or withholding of a dissolution of Parliament when requested by a Premier; the appointment of a new Ministry; or the assenting to, vetoing, or reserving of Bills passed by the legislative chambers. The Governors are authorised, under certain restrictions, to administer the prerogative of mercy by the reprieve or pardon of criminal offenders within their jurisdiction, and to remit fines and penalties due to the Crown. All moneys to be expended for the public service are issued from the Treasury under the Governor's warrant.

In a publication* in which the above matters are exhaustively discussed, it is indicated that there are important functions in the hands of a Governor, and that his influence may extend beyond what is anticipated by those who are unfamiliar with the activities of actual government. This is, however, essentially a matter of individual character. A Governor is entitled to the fullest confidence of his Ministers, to be informed at once of any important decisions taken by his Cabinet, and to discuss them with the utmost freedom. He can point out objections, give advice, deprecate measures, and

urge alterations, subject, however, to his remaining always behind the scenes. It should be remembered, moreover, that the State Executive Councils owe their existence to the Royal Letters Patent constituting the office of Governor and that, in law, the Governor is never bound to accept the advice of his Ministers. He cannot indeed do many things without their advice, for it is provided by law (either in the Constitution or Interpretation Acts, or by authoritative usage) that a Governor-in-Council must act on the advice of the Council. He cannot therefore perform any act in Council without a majority, though he can always refuse to act, and thus force his Ministers either to give way on the point at issue or to resign their posts. Even in the case of a ministerial act, he can forbid a Minister to take any action on pain of dismissal. Nominally a Governor will, of course, be justified in accepting the advice of his Ministers as being a correct statement of the facts and law, but he is not bound to be so satisfied, and in matters of law he must exercise his own judgment if he be in doubt. A Governor is not, however, entitled to refuse to act on the advice of his Ministers because he personally does not approve of their action or policy; his duty is not to his own conscience, but to the people of the State which he governs, and he should execute that duty independently of every other consideration.

Although the above furnishes a brief résumé of the powers of a Governor from a legal point of view, in practice the exercise of his powers is generally limited by his ability to persuade his Ministers as to the desirability of any particular course of action. Disagreement with Ministers is only justifiable in extreme cases, and even then it involves the responsibility of finding other Ministers, who must either shew that they have as much support as any other party, or be prepared to administer during a dissolution, pending an appeal to the people. It may be remarked that a Governor who cannot work with Ministers possessing the support of the people must be recalled, unless he has acted on Imperial grounds, and the dispute is not one between him and Ministers, but between the Imperial and State Governments.

It may also be pointed out that a Governor, besides acting according to law, has, within the range of what is lawful, to act according to the instructions of the Secretary of State. He is called upon to do so by the instruments which create his office and appoint him Governor, and he obeys the Secretary of State as the mouthpiece of the Crown. Historically, there have been many cases in which these instructions have placed Governors in opposition to their Ministers.

The present Governor-General is the Right Honourable LORD HENRY WILLIAM FORSTER OF LEPE, P.C., G.C.M.G. He assumed office on the 6th October, 1920. Particulars of previous Governors-General are given on p. 27 hereinbefore.

The following is a list of the Governors of the various States of the Commonwealth :—

New South Wales ..	SIR WALTER EDWARD DAVIDSON, K.C.M.G.
Victoria	Colonel the Rt. Hon. GEORGE EDWARD JOHN MOWBRAY ROUS, EARL OF STRADBROKE, K.C.M.G., C.B., C.V.O., C.B.E.
Queensland . ..	Lieutenant-Colonel the Rt. Hon. SIR MATTHEW NATHAN, P.C., G.C.M.G.
South Australia ..	Lieutenant-Colonel SIR WILLIAM ERNEST GEORGE ARCHIBALD WEIGALL, K.C.M.G.
Western Australia ..	SIR FRANCIS ALEXANDER NEWDIGATE NEWDEGATE, K.C.M.G.
Tasmania ..	SIR WILLIAM LAMOND ALLARDYCE, K.C.M.G.

7. Cost of Parliamentary Government.—The following statement shews the cost of parliamentary government in the Commonwealth and in each State, as well as the cost per head of population, for the year ended the 30th June, 1920. In order to avoid any incorrect conclusions as to the cost of the Governor-General's or Governor's establishment, it may be pointed out that a very large part of the expenditure (with the exception of item "Governor's salary") under the head of Governor-General or Governor represents official services entirely outside the Governor's personal interests, and carried out at the request of the Government.

COST OF PARLIAMENTARY GOVERNMENT, 1919-20.

Particulars.	C'with.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Total.
	£	£	£	£	£	£	£	£
1.* *Governor-General or Governor* —								
Governor's salary	10,000	5,000	5,000	2,561	4,000	4,000	2,750	33,311
Official Secretary's salary ..	850	440	}	{ 300	..	350	..	}
Governor's establishments ..	7,313	526	{ 4,620	} 846	..	1,935	452	} 38,600
Repairs and maintenance of Governor's residences ..	9,243	2,274	}	{ 1,369	3,922	2,876	1,484	}
Miscellaneous	..	923	(e) 255	2,345	141	..	495	4,159
Total	27,206	9,163	9,875	7,421	8,063	9,161	5,181	76,070
2. *Executive Council*—								
Salaries of Officers ..	206	250	640	20	..	350	..	1,466
Other expenses	4	257	14	71	..	10	..	356
Total	210	507	654	91	..	360	..	1,822
3. *Ministry*—								
Salaries of Ministers ..	15,231	10,924	8,400	8,300	5,000	6,200	3,636	57,691
Other expenses	..	801	(d)	..	..	2,679	538	4,018
Visits of Commonwealth Ministers to London ..	3,520	..	..	..	..	..	..	3,520
Total	18,751	11,725	8,400	8,300	5,000	8,879	4,174	65,229
4. *Parliament*—								
A. *The Upper House:*								
Allowances to members ..	22,376	..	..	1,759	3,600	11,000	4,705	43,440
Railway passes	(a)9,379	10,430	(e)5,000	(f)	1,033	(f)	750	26,592
Other expenses of members ..	(a)570	..	..	..	142	89	5	806
B. *The Lower House:*								
Allowances to members ..	40,993	37,392	17,099	37,485	8,011	17,852	8,271	167,103
Railway passes	(b)	13,821	(e)	(f)	2,375	(f)	1,250	17,446
Other expenses of members ..	(b)	1,836	..	1,519	432	276	114	4,177
C. *Miscellaneous:*								
Salaries of officers and staff ..	16,275	23,654	15,901	6,155	5,369	3,381	3,960	74,695
Printing	17,220	13,219	2,055	4,394	6,716	(l)	2,469	46,073
Hansard (including printing)	13,682	7,147	7,626	8,910	5,198	4,974	..	47,546
Library	5,703	874	968	1,285	886	408	}	
Refreshment rooms ..	1,453	(c)	1,974	1,302	1,499	1,700	}	
Water, power, light, and heat	781	630	457	544	890 }		} 775	39,276
Postage, stores, and stationery	(j)2,382	1,169	703	382	528	} 1,407	}	
Miscellaneous	(j)6,495	2,215	301	952	463 }		}	
Total	137,309	112,387	52,174	64,756	37,142	41,087	22,209	467,154
5. *Electoral Office*—								
Salaries of officers and staff ..	52,029	1,629	900	2,420	4,557	2,305 }	3,283	137,944
Other expenses	42,507	(i)	15,000	7,267	4,335	1,712 }		
Total	94,536	1,629	15,900	9,687	8,892	4,017	3,283	137,944
6. *Cost of Elections*	k 98,111	82,084	2,614	..	286	1,288	(g)	184,383
7. *Royal Commissions and Select Committees*	22,803	18,599	2,084	3,985	1,152	266	1,128	50,017
GRAND TOTAL ..	398,926	236,094	91,701	h94,240	60,535	h 65,058	36,065	982,619
Cost per head of population ..	1s.6.0d.	2s. 3.6d.	1s. 2.5d.	2s. 6.6d.	2s. 6.6d.	3s.10.5d	3s. 3.2d.	3s. 8.1d.

* See preceding paragraph. (a) Including Lower House. (b) Included in Upper House. (c) Included in Miscellaneous. (d) See note (e). Ministers are allowed £1 per day when travelling. (e) £5,000 is paid to the Railway Department to cover issue of passes to State Governor and Staff, members of Parliament of Victoria and other States, and Executive Councillors. (f) Not available. Each member of both Houses has a pass for the whole of the State Railways. (g) Included in Electoral Office. (h) Exclusive of travelling expenses of members, free passes, special trains, etc. (i) Included in cost of elections. (j) Stationery included with miscellaneous. (k) Including referenda, alterations to Constitution. (l) Included in item *Hansard*.

§ 2. Parliaments and Elections.

1. **Qualifications for Membership and for Franchise.**—The conspectus in § 4 of this section in the previous issue of the Year Book gives particulars as to the legislative chambers in the Commonwealth and State Parliaments, and shews concisely the qualifications necessary for membership and for the franchise in each House. Disqualification of persons otherwise eligible, either as members or voters, are generally on the usual grounds of being of unsound mind or attainted of treason, being convicted of certain offences, and, as regards membership, on the grounds of holding a place of profit under the Crown, being pecuniarily interested in a Government contract, or being an undischarged bankrupt.

2. **The Federal Parliament.**—The Senate consists of 36 members, six being returned by each of the original federating States. Members of this chamber are elected for a term of six years, but by a provision in the Constitution a certain number retire at the end of every third year, although they are eligible for re-election. In accordance with the Constitution the total number of members of the House of Representatives must be as nearly as possible double that of the Senate. In the House of Representatives the States are represented on a population basis, and the numbers stand at present as follows:—New South Wales, 27; Victoria, 21; Queensland, 10; South Australia, 7; Western Australia, 5; Tasmania, 5—total, 75. The Constitution provides for a minimum of five members for each original State. Members of the House of Representatives are elected for the duration of the Parliament, which is limited to three years. In elections for Senators, each State is counted as a single electorate, but an elaborate scheme of subdivision had to be undertaken in order to provide workable electorates in each State for members of the House of Representatives. Members of both Houses are paid at the rate of £1,000 per annum. Further information regarding the Senate and the House of Representatives is given on pages 10 to 14 hereinbefore.

Particulars of Elections. There have been seven complete Parliaments since the inauguration of Federation. The dates of the opening and dissolution of these Parliaments are given on page 26. The fifth Parliament, which was opened on the 9th July, 1913, was dissolved on the 27th June, 1914, in somewhat unusual circumstances. Under Section 27 of the Constitution, it is provided that, should the Senate fail to pass, or pass with amendments, any proposed law previously passed by the House of Representatives, and should the latter House, after a specified interval, again pass the proposed law, with or without the amendments of the Senate, and the Senate for a second time reject it or pass it with amendments to which the lower House will not agree, then the Governor-General may dissolve the two Houses simultaneously. For the first time in the history of the Commonwealth this deadlock between the Senate and the House of Representatives occurred in the second session of the fifth Parliament, and, in accordance with the section of the Constitution referred to above, both Houses were dissolved by the Governor-General. The first session of the eighth Parliament opened on the 26th February, 1920. Particulars regarding Commonwealth elections may be found in the tables given hereunder:—

FEDERAL ELECTION, MARCH, 1901.

State.	Number of Electors.		Electors who Voted.		Percentage of Electors who Voted.	
	Total.	In contested Districts for the House of Representatives.	Senate.	House of Representatives.	Senate.	House of Representatives.
New South Wales ..	331,765	317,902	218,456	211,035	65.81	66.38
Victoria	280,661	233,051	149,012	130,610	53.09	56.04
Queensland	103,806	103,806	51,336	62,656	49.45	60.35
South Australia ..	154,281	154,281	62,952	62,892	40.80	40.76
Western Australia ..	87,920	70,230	28,733	25,945	32.68	36.95
Tasmania	39,528	39,528	18,822	18,572	47.62	46.99
Commonwealth ..	997,961	918,798	529,311	511,710	53.04	55.69

FEDERAL ELECTIONS OF 16th DECEMBER, 1903, 12th DECEMBER, 1906, 13th APRIL, 1910, 31st MAY, 1913, 5th SEPTEMBER, 1914, 5th MAY, 1917, AND 19th DECEMBER, 1919.

State.		Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Percentage of Voters to Electors Enrolled.		
		Males.	Fem.	Total.	Males.	Fem.	Total.	Males.	Fem.	Total.
THE SENATE.										
New South Wales	1903	360,285	326,764	687,049	189,877	134,487	324,364	52.70	41.16	47.21
	1906	392,077	345,522	737,599	229,654	151,682	381,336	58.57	43.90	51.70
	1910	444,269	390,393	834,662	301,167	211,635	512,802	67.79	54.21	61.44
	1913	554,028	482,159	1,036,187	405,152	312,703	717,855	73.13	64.85	69.28
	1914	576,309	506,820	1,083,129	407,464	294,939	702,403	70.70	58.19	64.85
	1917	566,345	528,489	1,094,834	430,514	343,143	773,657	76.02	64.93	70.66
	1919	550,363	529,076	1,079,439	400,477	317,088	717,565	72.77	59.93	66.48
Victoria	1903	302,069	310,403	612,472	171,839	141,648	313,487	56.89	45.63	51.18
	1906	335,886	336,168	672,054	209,252	171,933	381,185	62.30	51.14	56.72
	1910	346,050	357,649	703,699	245,666	222,869	468,535	70.99	62.32	66.58
	1913	407,852	422,539	830,391	326,856	300,005	626,861	80.14	71.00	75.49
	1914	401,055	413,685	814,740	335,057	309,841	644,898	83.54	74.90	79.15
	1917	393,794	425,913	819,707	345,804	342,131	687,935	87.81	80.33	83.92
	1919	403,650	433,758	837,408	323,187	314,911	638,098	80.07	72.60	76.20
Queensland	1903	127,914	99,166	227,080	79,938	44,569	124,507	62.49	44.94	54.83
	1906	150,037	121,072	271,109	79,567	44,972	124,539	53.03	37.14	45.94
	1910	158,436	120,595	279,031	104,570	66,064	170,634	66.00	54.78	61.15
	1913	206,727	156,355	363,082	163,380	117,145	280,525	79.03	74.92	77.26
	1914	207,587	160,620	368,207	163,709	112,695	276,404	78.86	70.16	75.07
	1917	204,280	174,016	378,296	183,486	153,265	336,751	89.82	88.08	89.02
	1919	209,437	179,763	389,200	176,489	153,742	330,231	84.27	85.52	84.85
South Australia	1903	85,947	81,823	167,775	35,736	19,049	54,785	41.58	23.28	32.65
	1906	97,454	95,664	193,118	43,318	27,199	70,517	44.45	28.43	36.51
	1910	105,301	102,354	207,655	63,384	47,119	110,503	60.19	46.03	53.22
	1913	124,222	119,804	244,026	103,739	91,724	195,463	83.51	76.56	80.10
	1914	131,758	125,595	257,353	110,049	96,195	206,244	83.52	76.59	80.14
	1917	132,260	133,519	265,779	103,707	87,471	191,178	78.41	65.51	71.93
	1919	132,541	135,694	268,235	97,284	80,808	178,092	73.40	59.55	66.40
Western Australia	1903	74,754	42,188	116,942	26,878	6,270	33,148	35.96	14.86	28.35
	1906	91,427	54,046	145,473	37,180	15,532	52,712	40.67	28.74	36.23
	1910	80,996	53,983	134,979	53,704	30,189	83,893	66.30	55.92	62.15
	1913	106,264	73,520	179,784	80,011	52,138	132,149	75.29	70.92	73.50
	1914	107,005	75,102	182,107	79,150	50,984	130,134	73.97	67.89	71.46
	1917	93,049	74,981	168,030	76,518	54,154	130,672	82.23	72.22	77.77
	1919	87,921	75,623	163,544	60,731	42,504	103,235	69.07	56.21	63.12
Tasmania	1903	43,515	38,753	82,268	23,729	13,292	37,021	54.53	34.30	45.00
	1906	47,306	42,903	90,209	29,164	19,715	48,879	61.65	45.95	54.18
	1910	51,731	46,725	98,456	33,539	24,070	57,609	64.83	51.51	58.51
	1913	54,856	51,890	106,746	43,539	36,859	80,398	79.37	71.03	75.32
	1914	54,754	51,225	105,979	44,504	37,749	82,253	81.28	73.69	77.61
	1917	54,405	54,276	108,681	44,634	37,974	82,608	82.04	69.96	76.01
	1919	55,906	56,130	112,036	36,366	29,350	65,716	65.05	52.29	58.66
Commonwealth	1903	994,484	899,102	1,893,586	527,997	359,315	887,312	53.09	39.96	46.86
	1906	1,114,187	995,375	2,109,562	628,135	431,033	1,059,168	56.38	43.30	50.21
	1910	1,186,783	1,071,699	2,258,482	802,030	601,946	1,403,976	67.58	56.17	62.16
	1913	1,453,949	1,306,267	2,760,216	1,122,677	910,574	2,033,251	77.22	69.71	73.66
	1914	1,478,468	1,333,047	2,811,515	1,139,933	902,403	2,042,336	77.10	67.69	72.64
	1917	1,444,133	1,391,194	2,835,327	1,184,663	1,018,138	2,202,801	82.03	73.18	77.69
	1919	1,439,818	1,410,044	2,849,862	1,094,534	938,403	2,032,937	76.02	65.55	71.33
THE HOUSE OF REPRESENTATIVES. (a)										
New South Wales	1903	303,254	274,763	578,017	164,133	118,381	282,514	54.12	43.08	48.88
	1906	363,723	314,777	678,500	216,150	141,227	357,377	59.43	44.87	52.67
	1910	431,702	379,927	811,629	294,049	207,868	501,917	68.11	54.71	61.84
	1913	554,028	482,159	1,036,187	405,152	312,703	717,855	73.13	64.85	69.28
	1914	491,086	429,906	920,992	351,172	257,581	608,753	71.51	59.92	66.10
	1917	484,854	447,437	932,291	370,618	292,925	663,543	76.44	65.47	71.17
	1919	527,779	508,129	1,035,908	385,614	308,183	693,797	73.06	60.65	66.97
Victoria	1903	241,134	247,089	488,223	142,460	120,329	262,789	59.08	48.70	53.83
	1906	335,886	336,168	672,054	209,266	171,999	381,265	62.30	51.16	56.73
	1910	346,050	357,649	703,699	245,663	222,869	468,532	70.99	62.32	66.58
	1913	407,852	422,539	830,391	326,856	300,005	626,861	80.14	71.00	75.49
	1914	321,655	336,781	658,436	272,622	256,757	529,379	84.76	76.24	80.10
	1917	340,025	366,135	706,160	299,173	295,404	594,577	87.99	80.68	84.20
	1919	381,581	412,129	793,710	306,547	300,229	606,776	80.34	72.85	76.45
Queensland	1903	114,550	88,375	202,925	74,042	41,689	115,731	64.64	47.17	57.06
	1906	150,037	121,072	271,109	79,540	44,942	124,482	53.01	37.12	45.92
	1910	158,436	120,595	279,031	104,570	66,064	170,634	66.00	54.78	61.15
	1913	206,727	156,355	363,082	163,380	117,145	280,525	79.03	74.92	77.26
	1914	163,836	138,534	302,370	132,782	98,074	230,856	81.05	70.79	76.35
	1917	204,280	174,016	378,296	183,485	153,265	336,750	89.82	88.08	89.02
	1919	209,437	179,763	389,200	176,487	153,742	330,229	84.27	85.52	84.85

FEDERAL ELECTIONS OF 16TH DECEMBER, 1903, 12TH DECEMBER, 1906, 13TH APRIL, 1910, 31ST MAY, 1913, 5TH SEPTEMBER, 1914, 5TH MAY, 1917, AND 19TH DECEMBER, 1919—*continued.*

State.		Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Percentage of Voters to Electors Enrolled.		
		Males.	Fem.	Total.	Males.	Fem.	Total.	Males.	Fem.	Total.
				THE HOUSE OF REPRESENTATIVES—*continued.*						
South Australia ..	1903	23,856	25,789	49,645	12,394	7,728	20,122	51.95	29.97	40.58
	1906	42,065	38,578	80,643	19,850	12,669	32,519	47.19	32.84	40.32
	1910	59,581	61,594	121,175	37,189	29,852	67,041	62.42	48.47	55.33
	1913	90,009	85,304	175,313	74,316	65,704	140,020	82.57	77.02	79.87
	1914	116,594	111,372	227,966	97,182	84,956	182,138	83.35	76.28	79.90
	1917	116,568	114,749	231,317	91,642	75,450	167,092	78.61	65.75	72.23
	1919	132,541	135,694	268,235	97,284	80,808	178,092	73.40	59.55	66.40
Western Australia	1903	41,500	28,324	69,824	16,824	4,409	21,233	40.54	15.57	30.41
	1906	91,427	54,046	145,473	36,976	15,740	52,716	40.44	29.12	36.24
	1910	80,996	53,983	134,979	53,704	30,189	83,893	66.30	55.92	62.15
	1913	87,570	62,088	149,658	65,754	44,310	110,064	75.09	71.37	73.98
	1914	89,824	64,736	154,560	66,221	44,456	110,677	73.72	68.67	71.61
	1917	74,370	61,940	136,310	61,531	45,112	106,643	82.74	72.83	78.24
	1919	87,921	75,623	163,544	60,731	42,504	103,235	69.07	56.21	63.12
Tasmania ..	1903	43,515	38,753	82,268	23,729	13,284	37,013	54.53	34.28	44.99
	1906	37,779	34,839	72,618	23,753	16,441	40,194	62.87	47.19	55.35
	1910	51,731	46,725	98,456	33,539	24,070	57,609	64.83	51.51	58.51
	1913	54,856	51,890	106,746	43,539	36,859	80,398	79.37	71.03	75.32
	1914	42,995	41,122	84,117	34,789	30,314	65,103	80.91	73.72	77.40
	1917	42,430	43,661	86,091	35,103	30,770	65,873	82.73	70.47	76.52
	1919	55,906	56,130	112,036	36,366	29,350	65,716	65.05	52.29	58.66
Commonwealth	1903	767,809	703,093	1,470,902	433,582	305,820	739,402	56.47	43.50	50.27
	1906	1,020,917	899,480	1,920,397	585,585	403,018	988,553	57.35	44.81	51.48
	1910	1,128,496	1,020,473	2,148,969	768,714	580,912	1,349,626	68.12	56.93	62.80
	1913	1,401,042	1,260,335	2,661,377	1,078,997	876,726	1,955,723	77.01	69.56	73.49
	1914	1,225,990	1,122,451	2,348,441	954,768	772,138	1,726,906	77.88	68.79	73.58
	1917	1,262,527	1,207,938	2,470,465	1,041,552	892,926	1,934,478	82.50	73.92	78.30
	1919	1,395,165	1,367,468	2,762,633	1,063,029	914,816	1,977,845	76.19	66.90	71.59

In the Senate the figures for the year 1906 shew that ballot-papers were issued to 50.21 per cent. of the electors, and are a slight improvement on those for the year 1903, when only about 47 per cent. of the electors visited the polls. There was, however, a substantial increase in the number of electors who voted at the 1910 elections, 62.16 per cent. of the persons on the rolls exercising the franchise. The elections of 1913 showed a gratifying increase over those of 1910, no less than 73.66 per cent. of the persons on the rolls exercising their right to vote, while in 1914, the percentage was almost as high, viz., 72.64 per cent. It will be seen from the foregoing table that the electors of the Commonwealth are setting a higher value on the privilege of the franchise. The percentage of female voters in 1914, while still considerably below that of the males, shews a marked increase on that of female voters in the earlier years of Federation. At the elections in 1917, the proportion of voters of both sexes was the highest yet recorded. In 1919 the proportion is lower, approximating to the results of the 1913 and 1917 elections.

3. **Commonwealth Referenda, 26th April, 1911.**—Two proposed laws for the alteration of the Constitution were submitted to the people for acceptance or rejection on the 26th April, 1911. They were (*a*) The Constitution Alteration (Legislative Powers) 1910, and (*b*) the Constitution Alteration (Monopolies) 1910. If, in a majority of the States, a majority of the electors voting approve the proposed laws, and if a majority of all the electors voting also approve them, they are presented to the Governor-General for the King's assent. Particulars of the alterations proposed have already been given (see page 15).

Results of the Referenda of 1911 are given in the following table, which shews the number of electors enrolled, electors to whom ballot papers were issued, and the number of votes in favour of, and against, each of the proposed laws. As will be seen, neither of the proposed laws was approved by the people.

COMMONWEALTH REFERENDA (LEGISLATIVE POWERS AND MONOPOLIES), TAKEN ON 26th APRIL, 1911.

State.	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Legislative Powers.		Monopolies.	
	Males.	Females.	Total.	Males.	Females.	Total.	Total Number of Votes given in Favour of the Prop'sd Law.	Total Number of Votes given Not in Favour of the Prop'sd Law.	Total Number of Votes given in Favour of the Prop'sd Law.	Total Number of Votes given Not in Favour of the Prop'sd Law.
N.S.W. ..	461,196	406,998	868,194	233,668	150,520	384,188	135,968	240,605	138,237	238,177
Victoria ..	355,381	367,996	723,377	236,194	212,372	448,566	170,288	270,390	171,453	268,743
Q'land ..	167,725	125,278	293,003	101,245	60,890	162,135	69,552	89,420	70,259	88,472
S. Aust. ..	110,217	105,810	216,027	72,761	61,041	133,802	50,358	81,904	50,835	81,479
W. Aust.	83,850	54,847	138,697	42,598	18,884	61,482	33,043	27,185	33,592	26,561
Tasmania	54,063	48,318	102,326	33,103	24,950	58,053	24,147	33,200	24,292	32,960
Totals for C'wealth	1,232,377	1,109,247	2,341,624	719,569	528,657	1,248,226	483,356	742,704	488,668	736,392

4. Commonwealth Referenda, 31st May, 1913.—At the general elections that took place on 31st May, 1913, the question of altering the Constitution so as to extend the powers of the Commonwealth was again submitted to the people. The particulars of the proposed laws have been given on page 15 hereinbefore. The results of the Referenda of 1913 are given below, and, as will be seen, none of the proposed laws was approved by the electors.

COMMONWEALTH REFERENDA (LEGISLATIVE POWERS) TAKEN ON 31st MAY, 1913.

State.	Electors Enrolled.			Electors to whom Ballot Papers were issued.			Percentage of Voters to Electors Enrolled.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
N.S.W. ..	554,028	482,159	1,036,187	405,152	312,703	717,855	73.13	64.85	69.28
Victoria ..	407,852	422,539	830,391	326,856	300,005	626,861	80.14	71.00	75.49
Queensland ..	206,727	156,355	363,082	163,380	117,145	280,525	79.03	74.92	77.26
South Aust. ..	124,222	119,804	244,026	103,739	91,724	195,463	83.51	76.56	80.10
Western Aust.	106,264	73,520	179,784	80,011	52,138	132,149	75.29	70.92	73.50
Tasmania ..	54,856	51,890	106,746	43,539	36,859	80,398	79.37	71.03	75.32
Totals for Commonwealth	1,453,949	1,306,267	2,760,216	1,122,677	910,574	2,033,251	77.22	69.71	73.66

The following table shews the number of votes cast for and against each of the proposed laws in each of the States :—

COMMONWEALTH REFERENDA, 31st MAY, 1913.—RESULTS OF THE VOTING ON EACH PROPOSED LAW.

State.	Trade and Commerce.		Corporations.		Industrial Matters.		Railway Disputes.		Trusts.		Nationalisation of Monopolies.	
	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.
N.S.W. ..	317,848	359,418	317,668	361,255	318,622	361,044	316,928	361,743	319,150	358,155	301,192	341,724
Victoria ..	[illegible]	307,975	298,479	308,915	297,892	309,804	296,255	310,921	301,729	305,268	287,379	298,326
Q'land ..	146,187	122,813	146,936	123,632	147,171	123,554	146,521	123,859	147,871	122,088	139,019	117,609
S. Aust. ..	96,085	91,144	96,300	91,278	96,626	91,361	96,072	91,262	96,400	90,185	91,411	86,915
W. Aust.	66,349	59,181	66,595	52,445	66,451	59,612	65,957	59,965	67,342	58,312	64,988	57,184
Tasmania	34,660	42,084	34,724	42,304	34,839	42,235	34,625	42,296	34,839	41,935	33,176	40,189
Totals	958,419	982,615	960,711	986,324	961,601	987,611	956,358	990,046	967,331	975,943	917,165	941,947

5. **Commonwealth Referendum, 28th October, 1916.**—A special referendum was held on the 28th October, 1916, when the following question with regard to military service was submitted to the people :—" Are you in favour of the Government having, in *this grave emergency, the same compulsory powers over citizens in regard to requiring* their military service, for the term of this War, outside the Commonwealth, as it now has in regard to military service within the Commonwealth ? " In New South Wales, Queensland and South Australia the majority of voters were not in favour of the prescribed question ; and in Victoria, Western Australia and Tasmania the majority of votes were cast in its favour, the net result being a majority of 72,476 votes not in favour.

COMMONWEALTH REFERENDUM (MILITARY SERVICE), TAKEN ON 28th OCTOBER, 1916.

State	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Percentage of Voters to Electors Enrolled.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
N.S.W. ..	556,187	499,799	1,055,986	475,669	382,730	858,399	85.52	76.58	81.29
Victoria ..	398,975	425,997	824,972	354,067	342,617	696,684	88.74	80.42	84.45
Queensland ..	199,602	166,440	366,042	173,448	136,473	309,921	86.90	81.99	84.67
South Australia	131,636	131,145	262,781	113,461	97,791	211,252	86.19	74.57	80.39
Western Aust.	94,456	73,146	167,602	82,067	58,581	140,648	86.88	80.09	83.92
Tasmania ..	54,758	53,117	107,875	47,020	41,211	88,231	85.87	77.59	81.79
Federal Territories ..	3,296	1,276	4,572	2,576	892	3,468	78.16	69.91	75.85
Total ..	1,438,910	1,350,920	2,789,830	1,248,308	1,060,295	2,308,603	86.75	78.49	82.75

The following table shews the number of votes cast in each State in favour and not *in favour of the prescribed question* :—

COMMONWEALTH REFERENDUM, 28th OCTOBER, 1916.—RESULTS OF VOTING ON THE PRESCRIBED QUESTION.

State.	Votes given in *Favour of the* Prescribed Question.	Votes given Not *in Favour of* the Prescribed Question.	Percentage of Votes recorded in Favour of the Prescribed Question.	
			To Formal Votes.	To Electors Enrolled.
New South Wales	356,805	474,544	42.92	33.79
Victoria	353,930	328,216	51.88	42.90
Queensland	144,200	158,051	47.71	39.39
South Australia	87,924	119,236	42.44	33.46
Western Australia	94,069	40,884	69.71	56.13
Tasmania	48,493	37,833	56.17	44.95
Federal Territories	2,136	1,269	62.73	46.72
Total	1,087,557	1,160,033	48.39	38.98

6. **Commonwealth Referendum, 20th December, 1917.**—A further referendum was held on 20th December, 1917, the question being, " Are you in favour of the proposal of the Commonwealth Government for reinforcing the Australian Imperial Force oversea ? " The proposal was that, while voluntary enlistment was to continue, compulsory reinforcements should be called up by ballot to make the total reinforcements up to 7,000 per month. In New South Wales, Victoria, Queensland and South Australia the majority of voters were not in favour of the prescribed question ; and in Western Australia, Tasmania and the Federal Territories, the majority of votes were cast in its favour, the net result being a majority of 166,588 votes not in favour.

COMMONWEALTH REFERENDUM (MILITARY SERVICE), TAKEN ON 20th DECEMBER, 1917.

State.	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Percentage of Voters to Electors Enrolled.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total
N.S.W. ..	540,718	515,170	1,055,883	473,693	380,201	853,894	87.61	73.80	80.87
Victoria ..	383,511	423,820	807,331	348,211	330,595	678,806	90.80	78.00	84.08
Queensland ..	202,656	175,722	378,378	175,959	134,205	310,164	86.83	76.37	81.97
South Aust. ..	129,249	132,412	261,661	107,116	90,854	197,970	82.88	68.61	75.66
Western Aust.	88,126	74,221	162,347	81,365	54,228	135,593	92.33	73.06	83.52
Tasmania ..	53,030	53,773	106,803	43,981	34,811	78,792	82.94	64.74	73.77
Federal Territories ..	2,855	1,182	4,037	2,254	748	3,002	78.95	63.28	74.36
Total ..	1,400,140	1,376,300	2,776,440	1,232,579	1,025,642	2,258,221	88.03	74.52	81.34

The votes cast in each State were as follows :—

COMMONWEALTH REFERENDUM, 20th DECEMBER, 1917.—RESULTS OF VOTING ON THE PRESCRIBED QUESTION.

State.	Votes given in Favour of the Prescribed Question.	Votes given Not in Favour of the Prescribed Question.	Percentage of Votes recorded in Favour of the Prescribed Question.	
			To Formal Votes.	To Electors Enrolled.
New South Wales	341,256	487,774	41.16	32.32
Victoria	329,772	332,490	49.79	40.85
Queensland	132,771	168,875	44.02	35.09
South Australia	86,663	106,364	44.90	33.12
Western Australia	84,116	46,522	64.39	51.81
Tasmania	38,881	38,502	50.24	36.40
Federal Territories	1,700	1,220	58.22	42.11
Total	1,015,159	1,181,747	46.21	36.56

7. **Commonwealth Referenda, 19th December, 1919.**—Referenda were taken on 19th December, 1919, regarding a constitutional extension of Commonwealth powers in legislation and the nationalization of monopolies. In each case the majority of votes was not in favour of the proposed extension.

COMMONWEALTH REFERENDA (LEGISLATIVE POWERS AND NATIONALIZATION OF MONOPOLIES), 19th DECEMBER, 1919.

State.	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Percentage of Electors to whom Ballot Papers were Issued to Electors Enrolled.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
N.S.W. ..	550,363	529,076	1,079,439	400,477	317,088	717,565	72·77	59·93	66·48
Victoria ..	403,650	433,758	837,408	323,187	314,911	638,098	80·07	72·60	76·20
Queensland ..	209,437	179,763	389,200	176,489	153,742	330,231	84·27	85·52	84·85
South Aust. ..	132,541	135,694	268,235	97,284	80,808	178,092	73·40	59·55	66·40
Western Aust.	87,921	75,623	163,544	60,781	42,504	103,285	69·07	56·21	63·12
Tasmania ..	55,906	56,130	112,036	36,366	29,350	65,716	65·05	52·29	58·66
Total ..	1,430,818	1,410,044	2,840,862	1,094,534	938,403	2,032,937	76·02	65·55	71·23

The votes cast in each State for each of the questions were as follows :—

COMMONWEALTH REFERENDA, 19th DECEMBER, 1919.—RESULTS OF VOTING ON THE PRESCRIBED QUESTIONS.

State.	Proposed Law.	Votes given in Favour of Proposed Law.	Votes given Not in Favour of Proposed Law.	Percentage of Votes recorded in Favour of Proposed Law.	
				To Formal Votes.	To Electors Enrolled.
New South Wales	Constitution Alteration (Legislative Powers) 1919	259,751	390,450	39·95	24·06
	Constitution Alteration (Nationalization of Monopolies) 1919 ..	227,156	365,847	38·31	21·04
Victoria ..	Constitution Alteration (Legislative Powers) 1919	369,210	201,869	64·65	44·09
	Constitution Alteration (Nationalization of Monopolies) 1919 ..	324,343	188,120	63·20	38·73
Queensland ..	Constitution Alteration (Legislative Powers) 1919	175,225	130,290	57·35	45·02
	Constitution Alteration (Nationalization of Monopolies) 1919 ..	162,062	122,650	56·92	41·64
South Australia	Constitution Alteration (Legislative Powers) 1919	40,520	119,789	25·28	15·11
	Constitution Alteration (Nationalization of Monopolies) 1919 ..	38,503	112,259	25·54	14·35
Western Australia	Constitution Alteration (Legislative Powers) 1919	48,142	44,892	51·75	29·44
	Constitution Alteration (Nationalization of Monopolies) 1919 ..	45,285	38,584	53·99	27·70
Tasmania ..	Constitution Alteration (Legislative Powers) 1919	18,509	36,861	33·43	16·52
	Constitution Alteration (Nationalization of Monopolies) 1919 ..	16,531	31,982	34·08	14·76
Total	Constitution Alteration (Legislative Powers) 1919	911,357	924,160	49·65	31·98
	Constitution Alteration (Nationalization of Monopolies) 1919 ..	813,880	859,451	48·64	28·56

8. **The Parliament of New South Wales.**—The Legislative Council in this State is a nominee chamber, the Legislative Assembly being an elective body. Theoretically the Legislative Council may contain an unlimited number of members, but in practice the number is restricted to about sixty, the members at the latest available date being sixty-eight. The tenure of the seat is for life; four-fifths of the members must be persons not holding any paid office under the Crown, but this is held not to include officers of His Majesty's sea or land forces on full or half-pay, or retired officers on pensions. The

Legislative Assembly consists of ninety members, who hold their seats during the existence of the Parliament to which they are elected. Nine electorates return five members each, and fifteen return three members each. The duration of Parliament is limited to three years.

Particulars of Elections. Since the introduction of responsible government in New South Wales there have been twenty-five complete Parliaments, the first of which opened on the 22nd May, 1856, and was dissolved on the 19th December, 1857, while the twenty-fifth opened on the 27th April, 1920. The last mentioned Parliament was elected on the 20th March, 1920, under the proportional representation system. Particulars of voting at elections from 1894 to 1920 are given below :—

LEGISLATIVE ASSEMBLY ELECTIONS, NEW SOUTH WALES, 1894 TO 1920.

Date of Opening of Parliament.		Electors upon the Roll.	Members Returned.	Members Unopposed.	Contested Electorates. Electors upon the Roll.	Votes Recorded.	Percentage of Votes Recorded	Percentage of Informal Votes.
7th August, 1894 ..	..	298,817	125	1	254,105	204,246	80.38	1.62
13th August, 1895	..	267,458	125	8	238,233	153,034	64.24	0.88
16th August, 1898	..	324,339	125	3	294,481	178,717	60.69	0.92
23rd July, 1901 ..	..	346,184	125	13	270,861	195,359	72.13	0.79
23rd August, 1904	Males	363,062	90	2	304,396	226,057	74.26	0.59
	Females	326,428			262,433	174,538	66.51	
2nd October, 1907	Males	392,845	90	5	370,715	267,301	72.10	2.87
	Females	353,055			336,680	204,650	60.78	
15th Nov., 1910 ..	Males	458,626	90	3	444,242	322,199	72.53	1.78
	Females	409,069			400,139	262,154	65.52	
23rd Dec., 1913 ..	Males	553,633	90	3	534,379	385,838	72.20	2.10
	Females	484,366			468,437	302,389	64.55	
17th April, 1917	Males	574,308	90	8	525,681	328,030	62.40	0.94
	Females	535,522			487,585	295,354	60.57	
27th April, 1920	Males	607,859	90	Nil	607,859	363,115	61.21	9.69
	Females	574,736			574,736	285,594	50.89	

The franchise was extended to women (*Women's Franchise Act*) in 1902, and was exercised for the first time at a State election in 1904.

9. **The Parliament of Victoria.**—Both of the Victorian legislative chambers are elective bodies, but there is a considerable difference in the number of members of each House, as well as in the qualifications necessary for members and electors. The number of members in the Upper House in October, 1921, was 34, and in the Lower House, 65. In the Legislative Council the tenure of the seat is for six years, but one member for each province retires every third year, except in the case of a dissolution, when one half of the newly elected members hold their seats for three years only. Members of the Legislative Assembly are elected for the duration of Parliament, which is limited to three years. The franchise was extended to women by the *Adult Suffrage Act 1908*. An elector for the Legislative Assembly may vote only once, plurality of voting having been abolished in 1899 ; an elector, however, qualified in more than one district, may select that for which he desires to record his vote. A preferential system of voting (see Year Book No. 6, page 1182) was for the first time adopted in Victoria at the election held in November, 1911.

Particulars of Elections. Since the introduction of responsible government in Victoria there have been twenty-five complete Parliaments, the first of which opened on the 21st November, 1856, and closed on the 9th August, 1859, while the twenty-fifth closed on the 30th September, 1920. The first session of the twenty-sixth Parliament opened on the 10th November, 1920, and closed on the 7th January, 1921.

PARTICULARS OF VICTORIAN ELECTIONS, 1902 TO 1920.

Year.	Legislative Council.				Legislative Assembly.			
	Electors on Roll.	Electors in Contested Districts.	Voters in Contested Districts.	Percentage.	Electors on Roll.	Electors in Contested Districts.	Voters in Contested Districts.	Percentage.
1902..	134,087	(a)	(a)	(a)	290,241	216,063	141,471	65.47
1904..	172,526	104,865	66,182	63.11	264,709	223,600	149,192	66.72
1907..	180,738	78,512	27,152	34.58	261,088	191,131	117,098	61.26
1908..	185,234	(a)	(a)	(a)	263,876	164,919	88,461	53.64
1910..	240,520	136,479	40,053	35.21	487,661	(a)	(a)	(a)
1911..	249,481	(a)	(a)	(a)	701,451	619,644	394,189	63.61
1913..	270,175	99,646	47,719	47.89	670,775	(a)	(a)	(a)
1914..	284,089	(a)	(a)	(a)	810,026	593,334	319,950	53.92
1916..	300,321	92,421	34,853	37.71	767,378	(a)	(a)	(a)
1917..	308,339	(a)	(a)	(a)	828,230	658,488	356,999	54.21
1918..	310,987	(a)	(a)	(a)	816,172	(a)	(a)	(a)
1919..	317,593	133,058	40,393	30.35	805,703	(a)	(a)	(a)
1920..	326,261	(a)	(a)	(a)	868,848	735,054	468,225	63.70

(a) Not contested.

As the table shews, the number of voters for the Legislative Council is considerably less than that for the Legislative Assembly.

10. **The Parliament of Queensland.**—No limit is set by the Constitution Act to the number of members of the Legislative Council of Queensland, the total at the latest available date being fifty-nine. Members are appointed by the State Governor, and it is provided that not less than four-fifths of the members must consist of persons not holding any office under the Crown, except officers of His Majesty's sea or land forces on full or half-pay, or retired officers on pensions. The members are nominated for life. The Legislative Assembly is composed of seventy-two members, and the State is divided into that number of electoral districts. A modified system of optional preferential voting is in operation in Queensland. (See Year Book No. 6, page 1183.)

Particulars of Elections. Since the establishment of responsible government in Queensland there have been nineteen complete Parliaments, the first of which opened on the 29th May, 1860, and dissolved on the 20th May, 1863, while the first session of the twentieth Parliament opened on the 12th July, 1915. At the elections held in May, 1915, the principle of compulsory voting was introduced for the first time in Australia. It will be seen that of the total number of electors enrolled, 88.14 per cent. went to the polls. Statistics regarding the last nine elections are given below :—

ELECTIONS FOR QUEENSLAND LEGISLATIVE ASSEMBLY, 1902 TO 1920.

Year.	Number of Seats.	Number of Candidates Nominated.	Candidates sent to the Poll.	Electors Enrolled.			Electors who Voted.			Percentage of Electors Voting in Contested Electorates.		
				Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1902	72	159	154	108,548	..	108,548	80,076	..	80,076	78.88	..	78.88
1904	72	140	117	103,943	..	103,943	60,265	..	60,265	74.16	..	74.16
1907	72	185	179	125,140	95,049	220,189	(a)	(a)	152,049	73.42	68.64	71.61
1908	72	137	125	117,385	88,507	205,892	77,632	61,115	138,747	66.13	69.05	67.39
1909	72	145	133	135,841	106,913	242,754	89,609	66,809	156,418	75.34	69.36	72.67
1912	72	144	139	173,801	135,789	309,590	122,844	95,795	218,639	76.92	75.02	75.52
1915	72	148	138	184,627	150,568	335,195	140,396	125,844	266,240	86.46	90.09	88.14
1918	72	(b)	149	233,342	191,074	424,416	176,768	163,901	340,669	75.75	85.78	80.27
1920	72	(b)	144	238,750	206,931	445,681	187,575	168,651	356,226	78.57	81.50	79.98

(a) Incomplete; percentages based on available returns. (b) Not available.

The election of 1907 was the first State election in Queensland at which women voted, the privilege being conferred under the *Elections Acts Amendment Act 1905.* Some of the returns did not separate the sexes in the figures respecting the number of electors who voted, and the percentage of males and females was therefore calculated on the total returns where the subdivision was made.

11. **The Parliament of South Australia.**—In this State there is a Legislative Council composed of twenty members and a House of Assembly with forty-six members, both chambers being elective. The State is divided into five districts, which return four members each to the Legislative Council. For the House of Assembly, eight districts return three members each, and eleven districts two members each.

Particulars of Elections. Since the inauguration of responsible government in South Australia there have been twenty-three complete Parliaments, the first of which was opened on the 22nd April, 1857, and dissolved on the 1st September, 1859, while the twenty-third was opened on the 25th July, 1918, and terminated on the 28th February, 1921. The first session of the twenty-fourth Parliament began on the 21st July, 1921. Particulars of voting at the different elections from the year 1900 are given below:—

PARLIAMENTARY ELECTIONS IN SOUTH AUSTRALIA, 1900 TO 1921.

Year.	Electors on Rolls.			(a) Electors who Voted.			(a) Percentage of Electors Voting.	
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.
LEGISLATIVE COUNCIL.								
1900 ..	38,688	9,854	48,542	21,403	3,907	25,310	55.32	39.65
1902 ..	38,413	13,496	51,909	29,978	7,940	37,918	78.04	58.83
1905 ..	39,011	13,873	52,884	28,820	8,328	37,148	73.88	60.03
1910 ..	48,145	16,157	64,302	32,540	9,356	41,896	81.84	65.89
1912 ..	59,228	19,985	79,213	40,709	13,016	53,725	80.91	72.56
1915 ..	66,614	21,635	88,249	11,436	4,808	16,244	75.69	71.25
1918 ..	71,510	23,461	94,971	42,987	11,800	54,787	60.11	50.30
1921 ..	69,986	23,062	93,048	38,597	11,309	49,906	64.23	53.96
HOUSE OF ASSEMBLY.								
1902 ..	77,147	72,030	149,177	53,471	36,545	90,016	39.31	50.73
1905 ..	95,396	92,249	187,645	64,330	50,246	114,576	67.43	54.47
1906 ..	96,724	93,438	190,162	60,109	45,997	106,106	62.14	49.22
1910 ..	94,656	88,762	183,418	73,464	56,830	130,294	77.61	64.03
1912 ..	117,440	106,971	224,411	87,530	73,732	161,262	74.53	68.93
1915 ..	128,594	124,797	253,391	70,898	65,157	136,055	77.22	72.64
1918 ..	126,669	132,043	258,712	71,501	62,742	134,243	56.45	47.52
1921 ..	134,091	137,931	272,022	91,451	77,600	169,051	70.10	57.64

(a) In contested districts.

It is interesting to note that South Australia was the first of the States to grant women's suffrage (under the *Constitution Amendment Act 1894*), the franchise being exercised for the first time at the Legislative Assembly election on the 25th April, 1896.

12. **The Parliament of Western Australia.**—In this State both chambers are elective. For the Legislative Council there are thirty members, each of the ten provinces returning three members, while the Legislative Assembly is composed of fifty members, one member being returned by each of the fifty electoral districts. At the expiration of two years from the date of election to a seat in the Legislative Council, and every two years thereafter, the senior member for the time being for each province retires. Seniority is determined (*a*) by date of election, (*b*) if two or more members are elected on the same day, then the senior is the one who polled the least number of votes, (*c*) if the election be uncontested, or in case of an equality of votes, then the seniority is determined by the alphabetical precedence of surnames and, if necessary, Christian names. Members of the Legislative Assembly are elected for three years.

Particulars of Elections. Since the establishment of responsible government in Western Australia there have been ten complete Parliaments, the first of which was opened on the 30th December, 1890, while the eleventh Parliament was elected on 12th March, 1921. Women's suffrage was granted by the *Electoral Act* of 1899. At the 1921 elections, the first woman member elected to an Australian Parliament was returned. The preferential system of voting in use in Western Australia is described in Year Book No. 6, page 1184. Particulars relating to the last eight Assembly and seven Council elections are given in the tables below:—

PARLIAMENTARY ELECTIONS, WESTERN AUSTRALIA, 1901 TO 1921.

Year.	Electors on the Roll.			In Contested Districts.			Votes Recorded.			Percentage of Electors Voting.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
					LEGISLATIVE ASSEMBLY.							
1901 ..	74,874	16,648	91,522	67,967	14,775	82,742	29,832	8,255	38,087	44	56	46
1904 ..	108,861	54,965	163,826	88,524	49,791	138,315	43,285	23,500	66,785	49	47	48
1905 ..	79,025	42,697	121,722	65,296	36,706	102,002	33,482	19,435	52,917	51	53	52
1908 ..	83,060	52,919	135,979	69,277	44,804	114,081	46,411	29,412	75,823	67	66	66
1911 ..	91,814	60,831	152,645	71,675	50,700	122,375	53,355	38,281	91,636	74	75	75
1914 ..	126,598	88,143	214,741	96,503	72,043	168,546	54,612	41,993	96,605	57	58	57
1917 ..	93,106	73,845	166,951	76,445	61,310	137,755	45,453	40,167	85,620	59	65	62
1921 ..	89,523	75,165	164,688	79,161	67,787	146,948	54,747	44,211	98,958	69	65	67
					LEGISLATIVE COUNCIL.							
1908 ..	29,255	6,543	35,798	19,233	4,508	23,741	10,210	2,283	12,493	53	51	52
1910 ..	31,983	7,553	39,536	31,290	7,495	38,785	12,020	2,461	14,481	38	33	35
1912 ..	36,716	10,437	47,153	33,490	9,818	43,308	20,733	5,552	26,285	62	57	59
1914 ..	43,299	12,423	55,722	36,793	9,822	46,615	22,963	5,556	28,519	62	57	61
1916 ..	45,325	13,683	59,008	19,950	4,877	24,827	10,672	2,464	13,136	53	51	53
1918 ..	46,272	14,700	60,972	35,962	12,348	48,310	14,043	3,930	17,973	39	31	37
1920 ..	37,137	14,900	52,037	27,621	11,753	39,374	12,450	3,406	15,856	45	29	40

13. **The Parliament of Tasmania.**—In Tasmania there are two legislative chambers—the Legislative Council and the House of Assembly, both bodies being elective. The Council consists of eighteen members, returned from fifteen districts, Hobart returning three, Launceston two, and the remaining thirteen districts sending one member each. There are five House of Assembly districts corresponding to the Commonwealth electoral districts, each returning six members, who are elected under a system of proportional representation which first came into force at the 1909 elections. (See Year Book No. 6, page 1185.) Women's suffrage was first granted in this State under the *Constitution Amendment Act 1903.*

Particulars of Elections. The first Tasmanian Parliament opened on 2nd December, 1856, and closed on 8th May, 1861. There have been nineteen complete Parliaments since the inauguration of responsible government. The first session of the twentieth Parliament opened on 22nd July, 1919. Particulars of the voting at the last eight elections are given hereunder :—

ELECTIONS, HOUSE OF ASSEMBLY, TASMANIA, 1900 TO 1919.

Year.	Electors on Roll.		Electors in Contested Districts.		Votes Recorded.		Percentage of Electors Voting.		Percentage of Informal Votes on Votes Recorded
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
1900	30,002	..	29,022	..	18,872	..	65·02	..	..
(a) 1903	43,990	..	40,267	..	23,766	..	59·87	..	1·48
1906	47,400	41,629	37,120	33,415	23,128	17,194	62·30	51·46	1·21
(b) 1909	50,221	45,563	50,221	45,563	30,509	19,893	60·74	43·67	2·66
1912	52,853	50,660	52,853	50,660	40,713	35,337	77·03	69·73	2·85
1913	53,372	51,920	53,372	51,020	38,700	32,102	72·51	61·83	2·87
1916	54,466	52,855	54,466	52,855	41,427	37,557	76·06	71·05	5·66
1919	53,205	54,336	53,205	54,336	37,037	34,027	69·61	62·62	3·96

(a) Manhood suffrage, Act 64 Vic., No. 5. Universal adult suffrage, Act 3 Edward VII., No. 17, has been prescribed in all subsequent elections. (b) First election with six-member districts and single transferable vote.

During the same period, the percentages of informalities in Senate elections in Tasmania were 4.05, 4.48, 3.29, 6.15, and 3.72.

§ 3. Administrative Government.

In previous issues of the Official Year Book a conspectus was given in tabular form of the various departments in each State, together with a list of the principal Acts administered by them and the matters dealt with by them or under their control. See Official Year Book No. 12, pp. 924 *et seq.*

§ 4. Conspectus of Acts relating to the Constitutions of the Commonwealth and the Australian States.

The principal provisions of the Acts at present in force relating to the Constitution of the Commonwealth and the six States were given in summarized form in Official Year Book, No. 13, pp. 928 *et. seq.* Some minor alterations have been made since the summary was prepared.

SECTION XXVI.

LOCAL GOVERNMENT.

§ 1. Introduction.

1. **Early History and Systems of Local Government.**—A description of the systems of Local Government and their development in the several States of the Commonwealth was published in 1919 by the Commonwealth Bureau of Census and Statistics in a separate work entitled "Local Government in Australia." The early history of Local Government in Australia was also dealt with. In addition, descriptions were given of the various systems of water supply and sewerage, fire brigades, harbour trusts and marine boards, together with the bodies controlling the same.

Limits of space preclude the incorporation of information regarding the constitution etc., of municipal and other bodies contained in the publication referred to except in cases where fresh developments have taken place.

§ 2. Local Government Systems.

1. **New South Wales.**—(i) *Present System of Local Government.* The law relating to local government in New South Wales is now contained in Act No. 41 of 1919; this Act, however, does not affect the special Acts applying to the City of Sydney. Practically the whole of the State, with the exception of the Western Division, has been brought under the operation of this Act, the total area incorporated at the end of 1919 being 183,530 square miles, of which 180,708 square miles are comprised within shires and 2,822 within municipalities. The areas incorporated comprise the whole of the eastern and central divisions of the State, with the exception of Lord Howe Island, the islands in Port Jackson, and the quarantine station at Port Jackson.

The Act No. 41 of 1919, which consolidated all previous Acts, came into operation on the 1st January, 1920; it provides for the continuation of existing shires and municipalities, for the creation of new ones, and for their reconstitution by uniting, dividing, altering, or converting areas.

(ii) *Municipalities.* Including the City of Sydney there were 183 municipalities in New South Wales at the end of 1919; of these, forty were in the suburbs of Sydney and eleven in the district of Newcastle and suburbs.

(a) *Capital Value, Area, Population, and Rates Levied.* The following table shews the improved capital value, the area, population, number of buildings, and amount of rates levied in municipalities for the years 1901 and 1915 to 1919:—

NEW SOUTH WALES.—MUNICIPALITIES, IMPROVED CAPITAL VALUE, AREA, POPULATION, NUMBER OF BUILDINGS, AND TOTAL RATES LEVIED, 1901 AND 1915 TO 1919.

Year ended 31st Dec. (a)	Sydney and Suburbs.					Country.				
	Improved Capital Value.	Area.	Population.	Number of Dwellings.	Total Rates Levied.	Improved Capital Value.	Area.	Population.	Number of Dwellings.	Total Rates Levied.
	£	Acres.	No.	No.	£	£	Acres.	No.	No.	£
1901	88,116,600	91,220	(b)487,900	94,907	277,457	36,429,600	1,732,302	371,330	73,862	127,584
1915	169,778,544	95,259	748,940	(c)	1,076,885	57,949,558	1,769,155	456,000	(c)	464,511
1916	176,659,505	95,259	750,260	(c)	1,153,987	59,422,910	1,742,275	446,800	(c)	485,104
1917	183,469,822	95,259	762,480	(c)	1,124,590	62,055,080	1,742,275	453,800	(c)	516,816
1918	188,674,508	95,259	777,140	(c)	1,165,839	63,368,253	1,710,675	463,500	(c)	542,700
1919	194,495,477	95,259	811,910	(c)	1,306,394	66,059,272	1,710,475	482,860	(c)	586,256

(a) Prior to 1908 the municipal year ended on the first Monday in February, since when the municipal year closes on 31st December. (b) Census, March, 1901. (c) Not available.

The following table gives a comparison of the unimproved and improved values for the years 1915 to 1919 inclusive :—

NEW SOUTH WALES.—MUNICIPALITIES, UNIMPROVED AND IMPROVED CAPITAL VALUES, 1915 TO 1919.

Year.	Sydney.	Suburbs.	Metropolis.	Country.	Total.
			UNIMPROVED VALUE.		
	£	£	£	£	£
1915	27,226,283	33,403,223	60,629,506	22,843,195	83,472,701
1916	31,168,904	34,719,417	65,888,321	23,378,626	89,266,947
1917	31,130,368	36,808,755	67,939,123	24,350,474	92,289,597
1918	31,880,295	38,176,261	70,056,556	24,629,668	94,686,224
1919	31,831,054	39,672,190	71,503,244	25,289,371	96,792,615
			IMPROVED VALUE.		
1915	78,580,300	91,198,244	169,778,544	57,949,558	227,728,102
1916	80,264,720	96,394,785	176,659,505	59,422,910	236,082,415
1917	81,976,260	101,493,562	183,469,822	62,055,080	245,524,902
1918	82,027,200	106,647,308	188,674,508	63,368,253	252,042,761
1919	82,808,760	111,686,717	194,495,477	66,059,272	260,554,749

(b) *Revenue.* The following table gives particulars of the revenue of municipalities for the year ending 31st December, 1919 :—

NEW SOUTH WALES.—MUNICIPALITIES, REVENUE, 1919.

Particulars.	Sydney.	Suburbs.	Country.	Total.
	£	£	£	£
General fund	1,483,810 (a)	865,760	618,550	1,484,310 (b)
Trading accounts		..	210,028	210,028 (b)
Special and local funds ..		71,807	361,092	432,899 (b)
Loan funds		74,301	74,576	148,877 (b)
Reserve and Renewals Account		156	6,759	6,915 (b)
Gross revenue	1,483,810 (a)	1,012,024	1,271,005	3,766,839

(a) Items of revenue and expenditure for the City of Sydney cannot be allocated to the different headings shewn for municipalities. (b) Exclusive of Sydney.

(c) *Expenditure.* The following table gives particulars of expenditure of municipalities for the year ending 31st December, 1919 :—

NEW SOUTH WALES.—MUNICIPALITIES, EXPENDITURE, 1919.

Particulars.	Sydney.	Suburbs.	Country.	Total.
	£	£	£	£
General fund	1,454,277 (a)	881,696	627,660	1,509,356 (b)
Trading accounts		..	175,672	175,672 (b)
Special and local funds ..		63,069	355,727	418,796 (b)
Loan funds		40,960	66,786	107,746 (b)
Reserve and renewals account		2,160	2,708	4,868 (b)
Gross expenditure ..	1,454,277 (a)	987,885	1,228,553	3,670,715

(a) See note (a) to preceding table. (b) See note (b) to preceding table.

(ii) *Assets and Liabilities.* The financial position of the municipalities as at the 31st December, 1919, is shewn by the following statement of assets and liabilities of the various funds :—

NEW SOUTH WALES.—MUNICIPALITIES, ASSETS AND LIABILITIES, 1919.

Particulars.	Sydney.	Suburbs.	Country.	Total.
Assets—	£	£	£	£
General fund	11,578,854 (a)	454,640	561,387	1,016,027 (b)
Trading accounts		..	251,379	251,379 (b)
Special and local funds ..		54,570	1,904,682	1,959,252 (b)
Loan funds		165,348	652,805	818,153 (b)
Reserves and renewals account		1,138	28,660	29,798 (b)
Total	11,578,854 (a)	675,696	3,398,913	15,653,403
Liabilities—				
General fund	11,122,589 (a)	266,534	133,952	400,486 (b)
Trading accounts		..	107,192	107,192 (b)
Special and local funds ..		12,831	1,704,699	1,717,530 (b)
Loan funds		790,979	639,185	1,430,164 (b)
Reserves and renewals account		1,138	28,613	29,751 (b)
Total	11,122,589 (a)	1,071,482	2,613,641	14,807,712

(a) See note (a) to last table on preceding page. (b) See note (b) to last table on preceding page.

(iii) *Shires.* The total area of the 136 shires constituted under the new system is 180,708 square miles, and the population on the 31st December, 1919, was 692,230.

The shires vary in area from 36 square miles in the case of Ku-ring-gai, immediately north of the metropolis, to 5,730 square miles in the case of Lachlan in the Condobolin district.

(a) *Valuation and Rates Levied.* The unimproved capital value of the shires in 1919 was £110,881,306, but it is not possible to give the improved capital value or the assessed annual value, as the shires are not compelled to make these valuations. The total amount of all rates levied in 1919 was £763,356.

(b) *Revenue.* The principal heads of revenue for the last five years are shewn in the following table :—

NEW SOUTH WALES.—INCOME OF SHIRES, 1915 TO 1919.

Particulars.(a)	1915.	1916.	1917.	1918.	1919.
General Fund—	£	£	£	£	£
General rates (including interest)	612,612	633,973	672,473	710,983	742,026
Government endowment ..	163,211	143,259	151,446	162,188	153,234
Public works	192,319	205,277	167,696	157,737	230,673
Health administration ..	4,620	4,087	3,987	3,865	13,731
Public services	9,711	11,162	10,682	11,487	12,481
Shire property	12,512	12,449	14,343	14,258	15,539
Miscellaneous	5,843	7,507	7,303	7,427	7,192
Special, Local, and Loan Funds	65,293	75,309	84,374	93,101	114,885
Total revenue ..	1,066,121	1,093,023	1,112,304	1,161,046	1,289,761

(a) The receipts for Public Works, Health Administration, Public Service, etc., include Government grants during 1919 amounting to £218,667.

(c) *Expenditure.* The following statement shews the expenditure of shires during the years 1915 to 1919 inclusive:—

NEW SOUTH WALES.—EXPENDITURE OF SHIRES, 1915 TO 1919.

Particulars.	1915.	1916.	1917.	1918	1919.
General Fund—	£	£	£	£	£
Administrative expenses ..	87,527	100,224	100,649	99,391	115,657
Public works	813,400	843,803	901,730	916,351	1,013,337
Health administration ..	8,049	8,513	9,149	9,292	26,237
Public services	17,935	15,229	18,256	19,370	21,293
Shire property	14,644	14,969	16,211	16,884	17,037
Miscellaneous	10,290	17,510	15,912	15,526	16,034
Special, Local, and Loan Funds	67,025	78,649	78,819	86,905	98,403
Total expenditure ..	1,013,870	1,078,897	1,140,726	1,163,719	1,307,998

(d) *Assets and Liabilities.* The financial position of the shires at the end of the year 1919 shewed that there was an excess of assets of £375,686. The following table gives particulars of assets and liabilities as at the 31st December, 1919:—

NEW SOUTH WALES.—ASSETS AND LIABILITIES OF SHIRES, 1919.

Assets.		Liabilities.	
	£		£
General fund	505,272	General fund	159,616
Trading accounts	10,999	Trading accounts	8,495
Sanitary and garbage accounts ..	35,104	Sanitary and garbage accounts	9,917
Street lighting account ..	7,564	Street lighting account ..	359
Roads, bridges, and streets account	6,189	Roads, bridges, and streets account	1,479
Drainage account	56	Drainage account	171
Fire brigade account	734	Fire brigade account	13
Water supply account ..	8,637	Water supply account ..	6,809
Parks account	434	Parks account	1,115
Miscellaneous	1,535	Miscellaneous	563
Reserves and renewals account ..	7,360	Reserves and renewals account	7,360
Loan funds	18,571	Loan funds	30,872
		Total	226,769
		Excess of assets ..	375,686
Total	602,455	Total	602,455

2. **Victoria.**—(i) *Present System of Local Government.* Local government is now administered under the Act of 1915 throughout the whole of the State (with the exception of French Island) which is divided into cities, towns, boroughs, and shires. Melbourne and Geelong, having been incorporated under special statutes prior to the establishment of a general system of local government, are not subject to the provisions of the Local Government Act except in a few comparatively unimportant details.

In addition to the endowment of £50,000, the municipalities received from the Government during the financial year 1919–20 a sum of £69,532 out of the Licensing Fund as the equivalent for (a) fees for licenses, (b) fees for the registration of brewers and spirit merchants, and (c) fines, penalties, and forfeitures incurred under the Licensing Act 1915.

(ii) *Boroughs and Shires.—Number, Population, and Value of Ratable Property.* The following table shews, the number of cities, towns, boroughs, and shires, their estimated population, the number of ratepayers and dwellings, and the value of ratable property for the years 1901 and 1916 to 1920 inclusive :—

VICTORIA.—PARTICULARS OF MUNICIPALITIES, 1901 AND 1916 TO 1920.

Year ending 30th September.	Number of Municipalities.	Estimated Population.	Number of Ratepayers (both sexes).	Estimated Number of Dwellings.	Estimated Value of Ratable Property.	
					Total.	Annual.
					CITIES, TOWNS, AND BOROUGHS.	
					£	£
1901	58	627,237	153,783	130,358	67,302,423	4,765,632
1916	52	824,170	208,759	186,740	149,235,137	8,335,553
1917	51	829,368	213,520	188,528	154,105,571	8,587,302
1918	52	844,970	219,076	193,398	158,777,843	8,912,303
1919	52	859,470	224,757	197,689	164,306,704	9,227,807
1920	52	877,880	228,518	200,206	172,838,636	9,687,320
					SHIRES.	
					£	£
1901	150	571,683	159,128	122,645	106,839,331	5,771,865
1916	141	617,587	184,374	141,893	169,724,979	8,606,509
1917	139	618,896	187,894	142,511	172,309,539	8,732,116
1918	139	613,380	186,551	141,313	172,558,872	8,735,794
1919	138	622,260	188,032	141,951	176,297,529	8,922,859
1920	138	628,420	188,892	142,570	184,599,186	9,340,172

(iii) *Municipal Assets and Liabilities.* The assets of municipalities may be classified under three heads—(*a*) the municipal fund, (*b*) the loan fund, and (*c*) property; the liabilities under two heads—(*a*) the municipal fund, and (*b*) the loan fund. The following table shews the amount of municipal assets and liabilities for the years 1901 and 1915 to 1919 :—

VICTORIA.—MUNICIPAL ASSETS AND LIABILITIES, 1901 AND 1915 TO 1919.

Items.	1901.	1915.	1916.	1917.	1918.	1919.
			ASSETS.			
	£	£	£	£	£	£
MUNICIPAL FUND—						
Uncollected rates	187,205	147,886	146,491	138,617	132,217	133,585
Other assets	122,561	760,685	392,876	442,368	427,046	550,288
LOAN FUND—						
(*a*) Sinking funds—						
Amount at credit ..	675,310	839,951	792,445	745,784	596,550	465,132
Arrears due	1,391	1,826	634	1,782	5,054	1,093
(*b*) Unexpended balances ..	394,186	378,278	209,363	286,206	238,906	204,761
PROPERTY—						
Buildings, markets, etc. ..	2,507,441	3,863,556	3,750,947	3,848,320	3,871,232	3,938,068
Waterworks	197,675	175,267	177,050	252,069	268,815	271,581
Gasworks	63,782	99,107	105,124	109,215	110,819	114,505
Total	4,149,471	6,266,056	5,575,130	5,824,331	5,650,639	5,679,008

VICTORIA.—MUNICIPAL ASSETS AND LIABILITIES, 1901 AND 1915 TO 1919 —*continued*.

Items.	1901.	1915.	1916.	1917.	1918.	1919.
LIABILITIES.						
	£	£	£	£	£	£
MUNICIPAL FUND—						
Arrears due sinking funds ..	1,021	1,326	834	1,732	5,054	1,093
Overdue interest	9,413	13,776	14,456	24,425	6,920	6,611
Bank overdrafts	157,046	213,330	252,130	233,160	317,410	484,785
Other liabilities	112,207	410,576	221,183	233,189	260,947	280,475
LOAN FUNDS—						
Loans outstanding	4,253,304	5,739,084	5,869,260	6,030,343	5,764,050	5,041,429
Due on loan contracts ..	52,826	237,765	15,888	42,428	47,145	129,192
Due on current contracts ..	51,134	71,729	73,005	98,538	78,115	64,037
Total	4,637,041	6,687,586	6,446,756	6,663,815	6,488,641	6,007,622

(iv) *Revenue and Expenditure of Municipalities.* The following table shews the revenue from various sources, and the expenditure under various heads, exclusive of loan revenue and expenditure, of municipalities during the years 1901 and 1915 to 1919 :—

VICTORIA.—REVENUE AND EXPENDITURE OF MUNICIPALITIES, 1901 AND 1915 TO 1919.

Items.	1901.	1915.	1916.	1917.	1918.	1919.
REVENUE.						
	£	£	£	£	£	£
Taxation — Rates	722,340	1,277,063	1,346,439	1,305,723	1,462,640	1,560,968
Taxation — Licenses ..	104,499	104,634	105,772	108,651	109,916	136,517
Taxation — Dog fees ..	14,965	20,158	20,528	20,883	21,481	21,074
Taxation — Market and weighbridge dues ..	49,623	63,646	63,812	67,726	71,737	85,240
Government endowments and grants	175,072	140,545	74,372	68,364	62,460	96,429
Contributions for streets, etc. ..	24,999	52,472	52,045	54,620	63,910	93,900
Sanitary charges	48,253	85,971	91,125	96,484	101,791	101,996
Rents	54,117	72,133	59,006	62,953	65,821	60,845
Other sources	89,210	388,850	441,128	487,962	566,788	714,156
Total	1,283,984	2,205,472	2,254,227	2,363,366	2,526,544	2,880,125
EXPENDITURE.						
Salaries, etc.	139,270	199,872	206,353	210,034	214,797	226,692
Sanitary work, street cleaning, etc.	132,542	225,919	236,766	243,774	244,984	248,956
Lighting	86,059	93,381	95,420	97,685	98,511	100,679
Fire brigades' contributions ..	16,769	30,277	32,086	33,939	32,786	35,120
Public works — Construction ..	244,315	274,593	238,773	200,151	232,977	294,874
Public works — Maintenance ..	345,334	811,608	847,505	897,136	1,046,474	1,152,247
Formation of private streets, etc.	23,350	62,012	68,024	63,499	75,474	111,125
Redemption of loans	27,745	92,738	101,461	112,020	124,797	137,688
Interest on loans	197,810	252,912	262,760	274,113	277,435	257,057
Charities	13,407	19,406	18,801	20,350	19,977	21,103
Other expenditure	108,408	174,945	180,016	186,310	178,043	332,347
Total	1,330,004	2,237,663	2,287,967	2,339,011	2,546,255	2,917,888

3. Queensland.—(i) *Present System of Local Government.* The existing scheme of local government in the State of Queensland is regulated by the provisions of the Local Authorities Act 1902, with its amendments in 1903, 1905, 1910, 1912, 1913, and 1917, the State being divided into cities and towns and shires.

(ii) *Area, Population, Number of Dwellings, Rates, Assets and Liabilities of Cities, Towns and Shires.* The following table gives particulars of the area, population, number of inhabited tenements, assets and liabilities of cities and towns, and of shires, for each year from 1915 to 1919 :—

QUEENSLAND.—PARTICULARS OF CITIES AND TOWNS AND SHIRES 1915 TO 1919.

Year.	Municipality.	Area.	Population.	Number of Inhabited Dwellings.	Capital Value.	Assets.	Liabilities. Government Loans.	Liabilities. Other.	Liabilities. Total.
		Square Miles.	No.	No.	£	£	£	£	£
1915	Cities and Towns	400	289,441	61,140	16,401,175	1,691,800	249,675	1,132,546	1,382,221
	Shires ..	669,494	428,007	89,919	45,622,388	499,390	178,634	127,618	306,252
	Total ..	669,894	717,448	151,059	62,023,563	2,191,190	428,309	1,260,164	1,688,473
1916	Cities and Towns	395	295,495	58,223	16,361,028	1,741,355	258,225	1,170,038	1,428,263
	Shires ..	669,499	420,377	91,297	45,919,033	552,750	190,752	133,352	324,104
	Total ..	669,894	715,872	149,520	62,280,061	2,294,105	448,977	1,303,390	1,752,367
1917	Cities and Towns	406	320,450	62,839	16,771,990	1,829,543	261,385	1,217,593	1,478,978
	Shires ..	669,488	409,845	88,437	45,276,512	567,438	181,862	124,432	306,294
	Total ..	669,894	730,295	151,276	62,048,502	2,396,981	443,247	1,342,025	1,785,272
1918	Cities and Towns	507	330,272	65,588	17,436,371	1,988,957	270,820	1,328,205	1,599,025
	Shires ..	669,387	411,278	88,384	45,553,989	594,828	173,024	179,705	352,819
	Total ..	669,894	741,550	153,972	62,990,360	2,583,785	443,844	1,508,000	1,951,844
1919	Cities and Towns	510	346,019	66,879	17,648,597	2,037,948	304,204	1,363,391	1,667,595
	Shires ..	669,384	425,855	92,030	46,259,148	625,883	191,551	206,721	398,272
	Total ..	669,894	771,874	158,909	63,907,745	2,663,831	495,755	1,570,112	2,065,867

(iii) *Receipts and Expenditure of Cities, Towns, and Shires.* The following table shews the receipts and expenditure (including loan moneys) of cities and towns and of shires, as well as the total receipts and expenditure of all municipalities, for each year from 1915 to 1919 :—

QUEENSLAND.—REVENUE AND EXPENDITURE OF CITIES AND TOWNS AND SHIRES, 1915 TO 1919.

Year.	Municipality.	Receipts. From Government.	Receipts. From Rates.	Receipts. From other Sources.	Receipts. Total.	Expenditure. On Public Works.	Expenditure. Loan Redemption.	Expenditure. Office Expenses and Salaries.	Expenditure. Other Expenses. (a)	Expenditure. Total.
		£	£	£	£	£	£	£	£	£
1915	Cities and Towns	27,439	433,139	97,245	557,823	493,900	18,635	39,553	87,623	639,711
	Shires ..	36,736	415,371	62,665	514,772	390,701	15,088	67,485	60,706	533,980
	Total ..	64,175	848,510	159,910	1,072,595	884,601	33,723	107,038	148,329	1,173,691
1916	Cities and Towns	29,541	460,252	86,139	575,932	478,962	20,221	50,388	87,970	637,541
	Shires ..	23,680	443,843	63,361	530,884	366,007	13,587	82,240	71,902	533,736
	Total ..	53,221	904,095	149,500	1,106,816	844,969	33,808	132,628	159,872	1,171,277
1917	Cities and Towns	30,012	495,510	96,959	622,481	475,689	24,062	56,179	92,298	648,228
	Shires ..	16,138	485,375	71,175	572,688	395,687	12,250	86,112	61,215	555,264
	Total ..	46,150	980,885	168,134	1,195,169	871,376	36,312	142,291	153,513	1,203,492
1918	Cities and Towns	16,937	535,124	103,477	655,538	455,824	21,916	61,731	141,366	680,837
	Shires ..	23,448	506,447	69,147	599,042	502,390	13,864	89,387	61,252	666,893
	Total ..	40,385	1,041,571	172,624	1,254,580	958,214	35,780	151,118	202,618	1,347,730
1919	Cities and Towns	45,833	612,476	140,164	798,473	577,992	20,925	68,585	193,455	860,958
	Shires ..	41,000	538,769	110,707	690,476	507,506	18,080	97,047	95,385	718,018
	Total ..	86,833	1,151,245	250,871	1,488,949	1,085,499	39,005	165,632	288,840	1,578,976

(a) Including interest on loans.

4. South Australia.—(i) *Present System of Local Government.* The more settled portion is under the jurisdiction of municipal corporations under the Act of 1890 and its amendments, and of district councils under the Act of 1914, as amended in 1918. Subsidies of 25 per cent. on current rates collected are paid to corporations and to district councils. Votes are annually provided by Parliament of about £200,000, for payment to corporations and district councils as a contribution towards the cost of main roads throughout the State and other roads in newly-settled areas.

(ii) *Finances of Corporations and District Councils.* The subjoined tables shew the amounts of assessments and the revenue and expenditure of corporations and of district councils for the financial years 1901 and 1915 to 1919; the figures given are exclusive of the Main Roads Funds, particulars regarding which may be found in the section of this book on "Roads and Bridges."

SOUTH AUSTRALIA.—ASSESSMENT, REVENUE AND EXPENDITURE OF LOCAL AUTHORITIES, 1901 AND 1915 TO 1919 (EXCLUSIVE OF MAIN ROADS FUNDS).

Year. (a)	Amount of Assessment (Annual Value).	Revenue.				Expenditure.	
		From Rates.	From Subsidies.	Other Sources.	Total.	On Public Works.	Total.
				CORPORATIONS.			
	£	£	£	£	£	£	£
1901 ..	1,177,850	87,289	9,733	49,342	146,364	55,533	146,091
1915 ..	1,918,256	173,941	22,669	66,887	263,497	169,926	288,629
1916 ..	2,006,802	176,870	23,448	67,136	267,454	160,516	270,929
1917 ..	2,037,649	189,594	24,084	77,517	291,195	199,532	289,235
1918 ..	2,103,195	194,497	26,821	76,589	297,907	206,122	296,590
1919 ..	2,237,394	215,605	25,280	93,207	334,092	254,559	340,172
				DISTRICT COUNCILS.			
1901 ..	1,412,507	63,321	15,225	51,919	130,465	65,406	128,499
1915 ..	2,601,298	128,859	34,999	27,574	191,432	152,951	204,358
1916 ..	2,662,066	148,895	34,487	27,135	210,517	136,380	189,582
1917 ..	2,704,374	155,677	36,674	30,143	222,494	161,886	205,079
1918 ..	2,767,309	162,718	38,298	32,091	233,107	194,734	250,610
1919 ..	2,829,198	167,161	38,555	43,906	249,622	206,952	270,108

(a) Up to and including the year 1903, the financial year for corporations ended on the 31st December, but after that date ends on the 30th November. The financial year for district councils ends on the 30th June.

5. Western Australia.—(i) *Present System of Local Government.* In this State there are three forms of local authorities, namely—(i) Municipalities, (ii) Road Districts, and (iii) Local Boards of Health, the two former covering the whole of the State.

(ii) *Area, Population, etc., of Municipalities.* Returns regarding the area, population, and valuation of municipalities are defective. They are shewn in the table hereunder :—

WESTERN AUSTRALIA.—NUMBER, AREA, POPULATION, NUMBER OF DWELLINGS, AND VALUATION OF MUNICIPALITIES, 1901 AND 1915 TO 1920.

Year ended the 31st October.	Number of Municipalities.	Area.	Population.	Dwellings.			Amount Payable in respect of Rates.
				Occupied.	Unoccupied.	Total.	
	No.	Acres.	No.	No.	No.	No.	£
1901 ..	42	71,721	(a) 96,807 (b)	(b)20,989	(b) 967	(b)21,956	(c)
1915 ..	31	67,290	155,334	(c)	(c)	33,542	172,720
1916 ..	30	60,160	152,671	(c)	(c)	33,763	168,148
1917 ..	28	59,560	150,562	(c)	(c)	33,733	171,239
1918 ..	25	58,070	148,431	(c)	(c)	33,789	173,828
1919 ..	23	56,462	151,575	(c)	(c)	33,626	179,945
1920 ..	23	56,462	155,813	(c)	(c)	34,336	194,157

(a) Census figures, 1901 (b) Returns for thirty-nine municipalities only. (c) Not available.

Complete particulars of improved or unimproved capital values are not available. In the year 1915 the capital value of ratable property in municipalities was £24,921,422; in 1916, £26,817,864; in 1917, £24,933,426; in 1918, £26,077,875; in 1919, £26,172,435; and in 1920, £26,280,406.

(iii) *Revenue and Expenditure of Municipalities.* The following table gives particulars as to the revenue and expenditure of municipalities during the years 1901 and 1915 to 1920:—

WESTERN AUSTRALIA.—REVENUE AND EXPENDITURE OF MUNICIPALITIES, 1901 AND 1915 TO 1920.

Year ended the 31st October—	Revenue.				Expenditure.			
	From Rates.	From Govt. Grants.	From other Sources. (a)	Total.	Works and Improvements.	Disbursements in respect of Loans.	Other Expenses.	Total.
	£	£	£	£	£	£	£	£
1901 ..	78,022	66,860	82,246	227,128	111,241	23,809	79,365	214,415
1915 ..	170,675	10,309	465,810	646,794	190,739	129,103	382,784	702,626
1916 ..	166,617	9,462	437,258	613,337	120,411	127,559	370,390	618,360
1917 ..	167,997	7,813	375,541	551,351	73,991	133,954	334,002	541,947
1918 ..	171,315	1,870	374,992	548,177	75,086	135,617	327,784	538,487
1919 ..	177,408	3,595	377,421	558,424	71,907	135,448	351,365	558,720
1920 ..	190,171	1,142	471,859	663,172	95,194	147,396	423,233	665,823

(a) Including Loans raised during year and interest on Sinking Fund investments.

(iv) *Assets and Liabilities of Municipalities.* The following table gives particulars respecting the assets and liabilities of municipalities at the end of each financial year 1901 and 1915 to 1920:—

WESTERN AUSTRALIA.—ASSETS AND LIABILITIES OF MUNICIPALITIES, 1901 AND 1915 TO 1920.

Year ended the 31st October—	Assets.					Liabilities.		
	Balance in Hand. (a)	Value of Property owned by Municipalities.	Accrued Sinking Funds for Redemption of Loans.	Other Assets.	Total.	Outstanding Debts and Bonds.	Other Liabilities.	Total.
	£	£	£	£	£	£	£	£
1901	37,259	214,984	42,311	13,432	307,986	321,000	19,762	340,762
1915	16,732	1,280,912	268,911	103,409	1,669,964	1,690,074	74,392	1,764,466
1916	17,233	1,438,246	286,485	86,158	1,828,122	1,813,426	68,897	1,882,323
1917	27,259	1,445,877	298,421	85,039	1,856,596	1,789,168	67,754	1,856,922
1918	35,016	1,440,479	335,459	96,318	1,907,272	1,753,316	71,740	1,825,056
1919	41,806	1,426,270	372,168	127,532	1,967,776	1,738,568	85,361	1,823,029
1920	30,520	1,456,110	385,688	139,181	2,011,499	1,746,210	91,467	1,837,677

(a) Including bank balance, cash in hand, and fixed deposit.

(v) *Road Districts.* Returns regarding Road Districts are as under:—

WESTERN AUSTRALIA.—REVENUE AND EXPENDITURE, ASSETS AND LIABILITIES, OF ROAD DISTRICTS, 1901 AND 1915 TO 1920.

Year ended 30th June.	No. of Districts.	Area.	Estimated Annual Value.	Revenue.				Expenditure.				Assets.	Liabilities.
				Rates.	From Government.	Other. (c)	Total.	Administration.	Works.	Other.	Total.		
	No.	Acres.	£	£	£	£	£	£	£	£	£	£	£
1901 (a)	93	975,808	(b)	8,293	36,011	6,580	50,884	6,833	45,303	3,935	56,071	[illegible],339	2,441
1915 ..	112	975,815	1,756,314	88,569	27,753	47,571	163,893	26,025	139,542	27,466	193,033	206,806	98,285
1916 ..	113	975,827	1,802,847	104,345	24,397	38,820	167,562	24,903	114,343	27,094	166,340	226,335	114,841
1917 ..	117	975,828	1,793,463	113,686	30,226	55,383	199,295	26,335	126,316	36,526	189,177	256,245	137,994
1918 ..	116	975,830	(b)	116,245	32,594	46,187	195,026	27,969	139,514	38,[illegible]	206,165	265,038	149,127
1919 ..	118	975,831	(b)	118,144	27,692	53,748	199,584	29,591	132,276	42,245	204,112	272,441	173,002
1920 ..	118	975,830	(b)	135,644	53,234	68,902	257,780	31,722	152,172	59,471	243,365	280,621	191,823

(a) Year ended 31st December. (b) Not available. (c) Including Loans raised during the year and interest on Sinking Fund investments.

(vi) *Boards of Health.* On the 31st October, 1920, there were twenty-six Local Boards of Health within municipalities, and on the 30th June, 1920, sixty-one under control of Road Boards, and twenty-eight extra-municipal Boards. In and after 1911, the financial year of Municipal Local Health Boards ended 31st October, and that of extra-municipal Boards, 30th June.

The following table shews particulars of the receipts and expenditure of the various Boards—both municipal and extra-municipal—during the years 1901 and 1915 to 1920:—

WESTERN AUSTRALIA.—RECEIPTS AND EXPENDITURE OF LOCAL HEALTH BOARDS, 1901 AND 1915 TO 1920.

Year ended the 31st October—	Revenue.			Expenditure.		
	From Public Health Rate.	From other Sources.	Total.	On Sanitary Services.	Other Expenses.	Total.
	£	£	£	£	£	£
1901	15,251	17,456	32,707	18,789	15,555	34,344
1915 (a) ..	(e) 42,904	(f) 61,393	104,297	70,963	36,890	107,853
1916 (b) ..	(e) 43,942	(f) 59,441	103,383	68,749	29,971	98,720
1917 (c) ..	(e) 42,967	(f) 56,488	99,455	67,830	31,056	98,886
1918 (d) ..	(e) 41,358	(f) 56,383	97,741	66,652	32,588	99,240
1919 (g) ..	(e) 40,781	(f) 59,174	99,955	74,390	36,970	111,360
1920 (h) ..	(e) 49,012	(f) 74,633	123,645	82,856	39,719	122,575

(a) Exclusive of 13 inactive boards. (b) Exclusive of 8 inactive boards. (c) Exclusive of 10 inactive boards. (d) Exclusive of 8 inactive boards. (e) Including sanitary rates. (f) Including sanitary fees and charges. (g) Exclusive of 9 inactive boards. (h) Exclusive of 11 inactive boards.

6. **Tasmania.**—(i) *Systems of Local Government.* The whole State, with the exception of the cities of Hobart and Launceston, which were incorporated under separate Acts, was divided by the Local Government Act of 1906 into municipal districts. Amendments to that Act were made in 1908, 1911, 1918, 1919, and 1920.

(ii) *Annual Value, Revenue, and Expenditure of Municipalities.* The following table shows the annual value, total receipts, and expenditure of municipalities for the years 1915 to 1919 inclusive:—

TASMANIA.—ANNUAL VALUE, REVENUE AND EXPENDITURE OF MUNICIPALITIES, 1915 TO 1919.

Year.	Number of Municipalities.	Annual Value of Ratable Property.	Revenue.				Expenditure. (b)
			From Rates.	From Govt.	From other Sources. (a)	Total.	
		£	£	£	£	£	£
1915 ..	50	1,654,654	190,491	14,651	172,006	377,148	394,374
1916 ..	50	1,717,878	188,939	12,753	216,880	418,572	510,977
1917 ..	50	1,769,443	202,119	18,527	249,756	470,402	487,615
1918 ..	50	1,787,234	216,232	22,266	318,511	557,009	558,939
1919 ..	50	1,872,336	240,661	33,967	304,258	578,886	585,491

(a) Including sums derived from loans. (b) Including repayments of loans.

According to the latest estimate made by the Commissioner of Taxes the capital value of ratable property in 1919 was £37,121,328.

(iii) *Total Revenue and Expenditure of Local Bodies.* In addition to the local authorities already mentioned, seven Marine Boards and three Harbour Trusts have been established at ports in Tasmania for the purposes of constructing and maintaining wharves and jetties and of controlling all matters relating to shipping in the respective ports. Of the Water Trusts, seven maintain independent existence, and the remaining twenty-five are incorporated in the Municipalities. There are twenty-four

independent Cemetery Trusts. The subjoined statement shews the total revenue and expenditure for all local bodies, exclusive of all amounts contributed by the general Government, during each year from 1915 to 1919 inclusive:—

TASMANIA.—REVENUE AND EXPENDITURE OF ALL LOCAL BODIES, EXCLUSIVE OF AMOUNTS CONTRIBUTED BY THE GENERAL GOVERNMENT, 1915 TO 1919.

Particulars.	1915.	1916.	1917.	1918.	1919.
	(a) REVENUE.				
	£	£	£	£	£
Marine Boards and Lighthouses(c)	93,488	(c)67,579	100,364	79,633	89,037
Municipalities	362,497	405,819	451,875	534,743	544,919
Cemetery Trusts	1,320	1,275	1,143	1,507	1,718
Water Trusts	2,364	2,365	2,865	2,669	3,458
Total	459,669	477,038	556,247	618,552	639,132
	(b) EXPENDITURE.				
	£	£	£	£	£
Marine Boards and Lighthouses (c)	144,805	87,960	99,308	69,722	99,300
Municipalities	379,723	498,224	469,088	536,673	551,524
Cemetery Trusts	1,499	1,425	1,379	1,593	1,610
Water Trusts	1,966	1,813	1,753	2,246	2,894
Total	527,993	589,422	571,528	630,234	655,328

(a) Exclusive of amounts contributed by the general Government. (b) Exclusive of expenditure from Government contributions. (c) In 1915 the chief lighthouses were taken over by the Commonwealth.

§ 3. Water Supply, Sewerage and Drainage.

1. New South Wales.—(i) *Metropolitan Waterworks.* The following tables give particulars as to (a) the revenue, expenditure, and capital cost of the metropolitan waterworks, and (b) the number of gallons of water, number of houses and population supplied in 1901 and from 1916 to 1920:—

SYDNEY WATERWORKS.—REVENUE, EXPENDITURE, AND CAPITAL COST, 1901 AND 1916 TO 1920.

Year ended 30th June.	Revenue. (a)	Working Expenses.	Capital Cost, exclusive of Items on which Interest is not charged.	Percentage of Working Expenses to Revenue.	Percentage of Revenue to Capital Cost.	Interest Payable on Capital Cost.	Net Profit after Paying Working Expenses and Interest.
	£	£	£	%	%	£	£
1901 ..	203,348	49,270	4,300,552	24.22	4.72	152,333	1,745
1916 ..	470,744	165,210	7,192,472	35.09	6.54	261,335	44,199
1917 ..	468,537	177,977	7,769,200	37.98	6.03	306,198	−15,638b
1918 ..	523,979	195,448	8,472,700	37.30	6.18	343,716	−15,185b
1919 ..	627,288	219,322	8,900,391	34.96	7.04	377,885	30,079
1920 ..	664,975	291,618	9,584,723	43.85	6.93	433,170	−59,813b

(a) Rate increased from 6½d. to 7½d. in the £ of the assessed annual value from 1st July, 1918. (b) —Signifies loss.

SYDNEY WATERWORKS.—NUMBER OF GALLONS, HOUSES, AND POPULATION SUPPLIED, 1901 AND 1916 TO 1920.

Year ended 30th June.	Number of Houses Supplied.	Estimated Population Supplied.	Average Daily Supply.	Total Supply for the Year.	Average Daily Supply. Per House.	Average Daily Supply. Per Head of Estimated Population.	Mains Laid.
	No.	No.	1,000 Gallons.	1,000 Gallons.	Gallons.	Gallons.	Miles.
1901 ..	98,298	491,000	21,583	7,877,677	219	43.95	40
1916 ..	183,598	917,990	39,380	14,374,000	214	42.89	183
1917 ..	193,643	968,215	39,637	14,467,000	204	40.94	104
1918 ..	196,685	993,425	41,358	15,096,030	206	41.63	98
1919 ..	204,308	1,021,540	45,557	16,628,342	223	44.59	106
1920 ..	212,046	1,060,230	48,021	17,527,753	226	45.29	142

(ii) *Metropolitan Sewerage Systems.* The following tables shew (*a*) the revenue, expenditure, and capital cost of the metropolitan sewerage systems, and (*b*) the number of houses drained, the population served, and the length of sewers in 1901 and from 1916 to 1920:—

SYDNEY SEWERAGE SYSTEMS.—REVENUE, EXPENDITURE, AND CAPITAL COST, 1901 AND 1916 TO 1920.

Year ended the 30th June.	Revenue.	Working Expenses.	Capital Cost, exclusive of Items on which *Interest is* not charged.	Percentage of Expenditure *to* Revenue.	Percentage of Revenue on *Capital* Cost.	Interest Payable on Capital Cost.	Profit or Loss after Payment of Working Expenses and Interest.
	£	£	£	%	%	£	£
1901 ..	125,290	45,395	3,066,147	36.23	4.05	106,475	−26,580
1916 ..	363,799	120,244	6,114,072	33.05	5.95	224,551	19,004
1917 ..	387,333	138,416	6,722,313	35.73	5.76	269,723	−20,806
1918 ..	429,669	147,444	6,870,927	34.31	6.25	283,661	−1,436
1919 ..	497,406	151,951	6,963,573	30.54	7.14	291,347	54,108
1920 ..	512,621	202,360	7,124,813	39.47	7.26	328,239	−17,978

NOTE.—The minus sign (−) represents a loss.

SYDNEY SEWERAGE SYSTEMS.—NUMBER OF HOUSES DRAINED, POPULATION SERVED, AND LENGTH OF SEWERS, 1901 AND 1916 TO 1920.

Year ended the 30th June.	Number of Houses Drained.	Estimated Population Served.	Total Length of Sewers.	Total Length of Storm-water Drains.	Ventilating Shafts Erected.	Sewers Ventilated.
	No.	No.	Miles.	Miles.	Feet.	Miles.
1901	75,416	370,000	515.62	25.91	194,667	450
1916	129,650	648,250	1,022.15	54.08	443,134	953
1917	136,409	682,045	1,085.45	59.55	475,474	1,030
1918	139,777	698,885	1,113.34	60.07	479,464	1,039
1919	141,798	708,990	1,131.72	60.11	484,798	1,052
1920	145,304	726,520	1,161.94	63.73	503,362	1,096

(iii) *The Hunter District Water Supply and Sewerage.* (a) *Water Supply.* The number of service reservoirs has been increased to seventeen, with a capacity of 14,849,260 gallons. Of these twelve are supplied by gravitation from the summit reservoir, four by repumping, and one by direct pumping. The total length of water mains has risen to 449 miles.

The capital debt of the Board to the Government at 30th June, 1920, in respect of water supply was £973,512.

In the subjoined table particulars are given as to the revenue and expenditure, and also as to the number of houses and population supplied in 1901 and 1916 to 1920:—

PARTICULARS OF HUNTER DISTRICT WATER SUPPLY, 1901 AND 1916 TO 1920.

Year ended 30th June.	Revenue.	Working Expenses (including Interest).	Houses Supplied.	Estimated Population Served.	Supply.	
					Daily Average.	Total.
	£	£	No.	No.	1,000 gallons.	1,000 gallons.
1901	27,405	30,948	9,086	45,400	1,005	366,889
1916	79,507	58,436	22,056	110,280	3,507	1,283,754
1917	78,040	65,338	22,604	113,377	3,435	1,253,897
1918	80,607	73,949	23,257	116,285	3,442	1,256,628
1919	91,204	76,297	24,079	120,395	4,065	1,483,806
1920	97,469	88,488*a*	24,864	124,320	4,319	1,580,905

(*a*) Including £32,617, interest on capital debt, and £10,355, instalment to sinking fund for reconstruction of renewable works.

The average daily consumption of water for all purposes per inhabitant was 34.74 gallons during the year 1920, as against 33.76 gallons during the previous year.

(*b*) *Sewerage Works.* Considerable progress has been made by the Department of Public Works with the construction of the sewerage works for Newcastle and suburbs. Up to the 30th June, 1920, about 133 miles of sewers, connecting with 11,338 separate properties, were under the control of the Board. For the financial year 1919-20 the revenue was £28,050 and the expenditure £40,626, the latter amount including a £4,949 instalment to the sinking fund for the reconstruction of renewable works. The capital debt of the Board to the Government at 30th June, 1920, in respect of sewerage was £518,804.

(iv) *Water Supply and Sewerage in Country Towns.* The works of country water supply and sewerage are now carried on under the Local Government Act 1919, as amended in 1920. The operation of Part XIV. of the Principal Act commenced on 1st September, 1920, and until that date the Country Towns Water Supply and Sewerage Acts remained in operation.

(*a*) *Waterworks.* Up to the 30th June, 1918, 58 country municipalities had availed themselves of the privileges of the Acts as regards waterworks, all of which at that date had been completed and handed over by the Government. The capital debt of these works as gazetted was £1,466,751, and the total sums payable annually for various periods ranging up to 100 years was £55,306, including interest ranging from 3½ per cent. to 4 per cent. per annum, the first repayments having become due at various dates, starting from the end of the year 1893. In the calculation of these repayments the interest during construction on the sums actually expended has been added, and any payments by the councils, as well as sums remitted under the authority of the Acts, have

been deducted. It has recently been found necessary to increase the rate of interest from 4 to 5 per cent., and then 5½ per cent. per annum. Under the present Local Government Act, the Government may from time to time fix the rate of interest which shall be payable upon the amount of capital debt remaining unpaid on those works, and may thereupon alter the instalments accordingly. Other schemes of water supply and extensions of existing works are in course of construction. A few other municipalities have constructed works out of their own resources. The water supply of Broken Hill with a loan expenditure of £481,795 was constructed under a special Act, and is administered by the Minister for Public Works. The Junee Water Supply has been placed under special administration and the Grafton Water Supply serving both Grafton and South Grafton is vested in a board composed of three members of each council.

(b) *Sewerage Works.* Only twenty municipal councils have taken advantage of the Act providing for the construction of sewerage and storm water drainage works in country towns. On the 30th June, 1920, the capital debt of these systems was £474,952, the amount payable annually to the Government being £19,965. Other sewerage systems, as well as extensions to existing systems, are in course of construction.

2. **Victoria.**—(i) *The Melbourne and Metropolitan Board of Works.* No alteration has been made in the constitution of the Board. Under the provisions of section 71 of the Melbourne and Metropolitan Board of Works Act 1915, however, and by consent of the Governor in Council given on 14th December, 1920, all land within thirteen miles of the General Post Office was included within the Metropolis for Water Supply and Sewerage purposes. This land area consisted of 434 square miles, and on 31st December, 1920, comprised 18 cities, 3 towns, and 1 borough and part of another, also 1 shire and parts of 13 others, a total of 37 municipalities or portions thereof. Control for water supply purposes is also exercised by consent of the Governor in Council over other parts of certain municipalities outside the thirteen mile radius, the Board supplying water to the Metropolitan Farm at Werribee, the outfall sewer area, and elsewhere. Various other shires also arrange for bulk supplies of water. The total estimated population served on the 31st December, 1920, was 795,851. The liability on Government loans on the 30th June, 1920, was £1,313,182, and for loans raised by the Board was £11,523,613. The Board is still empowered to borrow £303,139 before reaching the limit of its borrowing powers.

(a) *Total Cost of Water Supply and Sewerage.* The subjoined table shews the total cost of construction and maintenance of water supply and sewerage from 1853 to 1920 :—

MELBOURNE AND METROPOLITAN BOARD OF WORKS.—TOTAL COST OF CONSTRUCTION AND MAINTENANCE OF WATER SUPPLY AND SEWERAGE, 1853 TO 1920.

Period ending 30th June.	Water Supply.			Sewerage.			Grand Total.
	Capital Cost.	Working Expenses.	Interest.	Capital Cost.	Working Expenses.	Interest.	
	£	£	£	£	£	£	£
1853 to 1891	3,378,246	420,833	1,021,676	..	..	..	4,820,755
1891 to 1901	336,957	367,506	1,021,181	3,307,764	114,268	919,017	6,066,693
1901 to 1911	299,303	384,871	1,026,362	2,981,666	461,706	2,333,348	7,487,256
1911 to 1914	600,222	159,903	354,665	614,401	199,214	902,310	2,830,715
1914 to 1915	129,007	60,547	130,268	245,548	72,030	316,788	954,188
1915 to 1916	91,893	54,580	134,915	166,201	70,783	321,640	840,012
1916 to 1917	31,979	54,566	137,544	108,583	72,658	329,176	734,506
1917 to 1918	21,214	60,714	139,458	165,911	85,327	345,521	808,145
1918 to 1919	32,245	59,394	153,573	138,884	87,954	372,235	844,285
1919 to 1920	47,251	62,941	156,588	158,288	95,287	373,925	894,280
Total ..	4,968,317	1,685,855	4,276,230	7,877,246	1,259,227	6,213,960	26,280,835

(*b*) *Revenue and Expenditure of Melbourne and Metropolitan Board of Works.* The following table shews the actual receipts and expenditure, and also the loan receipts and expenditure of the Board during 1901–2 and 1915–16 to 1919–20 :—

MELBOURNE AND METROPOLITAN BOARD OF WORKS.—REVENUE AND EXPENDITURE DURING EACH YEAR, 1901–2 AND 1915–16 TO 1919–20.

Particulars.	1901–2.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
ORDINARY RECEIPTS.						
	£	£	£	£	£	£
Water supply	171,956	344,053	333,747	335,674	353,466	394,007
Sewerage, etc.	124,696	311,408	293,250	308,904	364,025	396,718
Live stock—Metropolitan farm	19,929	103,669	86,225	58,124	57,201	53,051
Interest — Water supply	..	1,718	1,593	1,053	826	1,707
Interest — Sewerage	17,448	8,694	11,131	8,514	7,525	9,509
Sinking Fund proceeds	..	..	..	30,275	..	..
Total	334,029	769,542	725,946	742,544	783,043	854,992
ORDINARY EXPENDITURE.						
General management	33,621	45,776	49,409	50,094	49,700	51,259
Live stock, etc.—Metropolitan farm	16,702	87,325	67,206	85,195	63,595	60,851
Maintenance — Water supply	22,205	41,457	88,452	39,024	39,580	60,362
Maintenance — Sewerage	24,396	54,748	45,208	61,332	56,221	62,149
Interest — Water supply	102,670	136,633	139,138	140,906	145,458	147,750
Interest — Sewerage	192,952	330,568	340,569	354,211	361,898	362,886
War expenditure : Safeguarding works, etc.	..	1,000	7,431	6,458	3,535	1,195
Patriotic and Belgian Relief Funds	..	10,721	..	..	713	100
Victorian Red Cross	..	30,000	100	..	..	..
Sinking fund investment	..	..	..	..	*30,000*	*5,086*
Total	392,546	738,228	687,583	737,220	750,700	751,588
LOAN RECEIPTS.						
Water supply	1,636	18,500	8,062	3,482	2,720	4,712
Sewerage ..	88,425	53,326	44,926	42,673	47,339	53,973
Proceeds of loans	396,238	190,512	567,878	77,025	176,125	543,853
Miscellaneous	..	7,947	2,648	4,431	4,857	4,351
Total	486,299	270,285	623,514	127,611	231,041	606,889
LOAN EXPENDITURE.						
Water supply construction	17,058	109,440	39,764	23,569	35,237	55,937
Sewerage construction	410,760	235,456	154,748	182,431	191,012	205,516
Expenses in floating and redemption of loans ..	5,200	51,659	379,362	26,429	27,151	249,617
Miscellaneous	(*a*) 4,293	30,311	7,156	1,273	9,263	27,622
Total	428,725	426,766	581,025	233,702	262,663	538,692

(*a*) Credit by excess of stock distribution (£7,020) over purchases (£2,727).

(ii) *Melbourne Metropolitan Water Supply.* (*a*) *Development of System.* The following statement shews the development which has taken place in the water supply system of Melbourne during the 63 years since its inception :—

MELBOURNE WATER SUPPLY SYSTEM, 1857 TO 1920.

Year.	Estimated Population Supplied. (*a*)	Capital cost. (*b*)	Charge per 1,000 Gallons.	Rate in £.	Reticulation, Mains, etc., Mileage. (*b*)	Daily average of annual consumption of water. (*a*)
		£				
1857 (Dec. 31)	95,442	748,974	10/- and 6/-	1/-	104	3,250,000
1920 (June 30)	795,851	4,968,317	1/-	6d.	1,723½	45,187,536

(*a*) 31st December. (*b*) 30th June.

On the O'Shanassy scheme up to 30th June, 1920, the sum of £406,678 has been expended.

(*b*) *Quantity of Water, Number of Houses, and Population Supplied.* The following table gives various particulars for the years 1901 and 1916 to 1920, shewing the increase in the supply of water in Melbourne and suburbs :—

MELBOURNE WATERWORKS.—NUMBER OF HOUSES, POPULATION, AND WATER SUPPLIED, 1901, AND 1916 TO 1920.

Year. Ended 30th June.	Number of Houses Served.	Estimated Population Supplied.	Average Daily Supply.	Total Supply for the Year ended 30th June.	Average Daily Supply.		Rate Levied.	Assessments of Houses Served by Metropolitan Water Supply.
					Per House.	Per Head of Estimated Population.		
	No.	No.	,000 Gallons.	,000 Gallons.	Gallons.	Gallons.		£
1901 ..	104,548	491,780	28,732	10,487,007	274.8	58.4	6d. in the £	3,479,721
1916 ..	155,208	693,978	37,069	13,567,184	238.8	53.4	6d. in the £	6,905,842
1917 ..	158,086	720,577	37,653	13,743,439	238.2	52.3		7,113,740
1918 ..	161,743	733,496	39,133	14,283,490	241.9	53.3		7,270,091
1919 ..	165,046	749,709	41,222	15,045,938	249.8	55.0		7,507,306
1920 ..	170,550	771,871*a*	44,300	16,235,587	260.1	57.47		7,945,874

(*a*) Census population 3rd April, 1921.

(*c*) *Total Cost of Construction, Revenue, Expenditure and Net Profits, 1853 to 1920.* The following table shews the total cost of construction, the revenue, expenditure, and net profits for various periods up to 30th June, 1920 :—

MELBOURNE WATERWORKS.—CONSTRUCTION COST, REVENUE, EXPENDITURE, AND NET PROFITS, 1853 TO 1920.

Period.	Capital Cost. (*a*)	Revenue. (*b*)	Working Expenses. (*c*)	Percentage of Working Expenses to Revenue.	Interest. (*d*)	Surplus.
	£	£	£	%	£	£
Total to 1890–1 ..	3,378,246	3,150,055	420,833	..	1,021,676	1,707,546
1891–2 to 1900–1	336,957	1,686,025	367,506	21.80	1,021,181	297,338
1901–2 to 1910–11(*e*)	299,303	2,054,355	384,871	18.73	1,026,362	643,122
1911–12 to 1913–14	600,222	897,577	159,903	17.81	354,665	383,009
1914–15 ..	129,007	350,549	60,547	17.27	130,268	159,734
1915–16 ..	91,893	(*f*) 334,181	(*g*) 54,580	16.33	134,915	144,686
1916–17 ..	31,979	319,614	(*h*) 54,566	17.07	137,544	127,504
1917–18 ..	21,214	331,955	(*i*) 60,714	18.29	139,458	131,783
1918–19 ..	32,245	372,180	(*j*) 59,394	15.96	153,573	159,213
1919–20 ..	47,251	398,173	(*k*) 62,941	15.80	156,588	178,644
Total ..	4,968,317	9,894,664	1,685,855	..	4,276,230	3,932,579

(*a*) Works commenced in 1853. (*b*) Revenue commenced in 1854. (*c*) Returns for expenditure commenced in 1859. (*d*) First interest paid in 1856. (*e*) 1906–07. Water rates increased from 6d. to 7d. in the £. (*f*) Rate reduced from 7d. to 6d. in the £. (*g*) Not including renewals (£7,349) and special War expenditure (£7,728). (*h*) Not including renewals (£4,545) and special War expenditure (£4,669). (*i*) Not including renewals (£3,893) and special War expenditure (£3,632). (*j*) Not including renewals (£4,183) and special War expenditure (£1,888). (*k*) Not including renewals (£[illegible],343) and War expenditure (£552).

(iii) *Melbourne Sewerage.* The movable pan system has been displaced by the water carriage system throughout the greater portion of the metropolis, and in other parts the work of reticulation is now proceeding.

(a) *Metropolitan Sewage Farm.* The farm originally contained 8,847 acres, situated on the western side of the Werribee River. Since 1911, 3,129 acres have been purchased, making the total area of the farm 11,976 acres at 30th June, 1920, its total cost to that date being £578,139. About 34,360,794 gallons of sewage had to be disposed of every 24 hours during the year 1919–20 in irrigating the fields. During the financial year 1919–20, 5,085 sheep were sold, the profit for the year being £4,582. Cattle to the number of 2,268 were sold, the profit for the year on cattle being £21,019.

(b) *Number of Houses Connected, Capital Cost, Revenue and Expenditure.* The following table gives particulars as to the number of houses connected to the sewerage system, the total capital cost, and the receipts and disbursements during 1901–2 and 1915–16 to 1919–20 :—

MELBOURNE SEWERAGE WORKS.—TENEMENTS CONNECTED, CAPITAL COST, REVENUE, MAINTENANCE, AND WORKING EXPENSES, 1901–2 AND 1915–16 TO 1919–20.

Year.	Number of Houses Connected.	Capital Cost.	Revenue.			Maintenance, Repairs and Renewals.
			From Rates.	From other Sources.	Total.	
	No.	£	£	£	£	£
1901–2 ..	47,172	3,610,225	126,725	10,968	137,693	24,336
1915–16 ..	143,737	7,135,580	307,625 (a)	50,487	358,112	52,402 (b)
1916–17 ..	148,395	7,424,163	289,512 (c)	25,586	315,098	53,099 (d)
1917–18 ..	151,622	7,580,074	298,053 (e)	29,346	327,399	65,534
1918–19 ..	155,238	7,718,958	341,053 (f)	38,847	379,900	69,777 (g)
1919–20 ..	158,735	7,877,246	362,136	46,921	409,057	75,094 (h)

(a) Rate reduced from 1s. 1d. to 11d. in the £. (b) Not including renewals (£3,424) and special War expenditure (£2,925). (c) Rate reduced from 11d. to 10d. in the £. (d) Not including renewals (£3,790) and special War expenditure (£2,635). (e) Not including renewals (£3,402) and special War expenditure (£2,609) (f) Rate increased from 10d. to 11d. (g) Not including Renewals (£3,388) and special War expenditure (£1,564). (h) Not including renewals (£3,775) and special War expenditure (£553).

(iv) *Water Supply in Country Towns and Districts.* Most of the country waterworks are controlled by the State Rivers and Water Supply Commission. Further information with regard to this Commission and to the works and districts under its control are given in the section in this book dealing with Water Conservation and Irrigation. There are, however, a number of other waterworks which are controlled by Waterworks Trusts or by municipal corporations.

The following table gives particulars as to the waterworks under the control of Trusts and municipal corporations for the years 1901 and 1916 to 1920 :—

VICTORIA.—COUNTRY WATERWORKS UNDER TRUSTS AND MUNICIPAL CORPORATIONS, 1901 AND 1916 TO 1920.

Year.	Waterworks Trusts.				Municipal Corporations.			
	Number of Trusts.	Capital Cost.	Capital Indebtedness.	Interest Outstanding.	Number of Corporations.	Capital Cost.	Capital Indebtedness.	Interest Outstanding.
	No.	£	£	£	No.	£	£	£
1901 ..	76	823,418	748,089	(a)	24	(a)	470,041	(a)
1916 ..	97	1,206,938	929,561	13,128	28	700,832	450,518	2,050
1917 ..	98	1,224,211	937,810	13,358	28	718,089	464,114	1,871
1918 ..	98	1,196,335	904,229	12,632	29	773,998	514,115	10,379
1919 ..	98	1,210,097	907,087	13,898	29	779,834	515,240	9,658
1920 ..	98	1,189,259	892,222	14,970	29	782,115	515,364	10,614

(v) *Geelong Waterworks and Sewerage Trust.* The cost* of the works (water and sewerage) under the control of the Geelong Waterworks and Sewerage Trust to 30th June, 1920, was £800,700, the estimated population served 37,000, and the number of assessments 11,900. The revenue for the year amounted to £51,836.

3. **Queensland.**—(i) *The Metropolitan and Ipswich Water Supply and Sewerage Board.* (a) *General.* Since the publication of Year Book No. 12, the filtration works on Holt's Hill have been put into operation and the whole of the water supply in the Brisbane area is now filtered.

The second reservoir has been completed on Bartley's Hill, bringing the capacity of the service reservoirs to six and a half million gallons. A new reservoir is being constructed on Tarragindi Hill, a suburb of Brisbane, to contain approximately 14,000,000 gallons. It is anticipated that this reservoir will be completed during the year 1921.

(b) *Brisbane Waterworks and Sewerage Works under Construction: Cost, Revenue, Expenditure, and Interest.* The subjoined table gives particulars as to the total capital cost, the revenue and expenditure, and amount of interest and loan redemption during 1901 and each of the years 1915 to 1920:—

BRISBANE WATERWORKS AND SEWERAGE WORKS UNDER CONSTRUCTION.—COST, REVENUE, EXPENDITURE, INTEREST, AND REDEMPTION OF LOANS, 1901 AND 1915 TO 1920.

Year.	Capital Cost (including Sewerage Works from 1914).	Revenue from Rates and Sales of Water.	Working Expenses.	New Work Construction (including Sewerage Works from 1914).	Interest and Redemption of Loans.
	£	£	£	£	£
1901	694,973	60,120	17,462	7,535	42,426
1915	1,852,622	103,530	50,078	361,765	52,704
1916	2,136,699	111,066	53,879	284,078	53,995
1917	2,422,857	121,514	59,199	286,158	60,388
1918	2,683,846	134,121	65,653	259,132	64,039
1919	3,115,002	156,743	79,667	431,156	72,354
1920	3,661,580	216,620	94,070	546,578	88,033

(c) *Brisbane Waterworks: Length of Mains, Tenements and Population Served, and Water Consumption.* The following table shews the length of mains, the number of tenements connected, the population supplied, the total quantity of water supplied, the average daily supply, and the average daily supply per head of population during 1901 and each year from 1915 to 1920:—

BRISBANE WATERWORKS.—PARTICULARS, 1901 AND 1915 TO 1920.

Year.	Length of Reticulation Mains.	Number of Tenements Connected.	Estimated Population Supplied.	Quantity Supplied.	Average Daily Supply.	Average Daily Supply per Head of Estimated Population.
	Miles.	No.	No.	,000 Gallons.	Gallons.	Gallons.
1901	198	15,652	78,260	1,536,260	4,208,931	53.78
1915	405	31,442	157,210	2,655,440	7,275,178	46.28
1916	414	31,770	158,030	2,629,108	7,183,354	45.46
1917	429¼	33,082	165,410	2,827,836	7,747,496	46.83
1918	451¼	34,450	172,250	3,159,105	8,655,082	50.24
1919	477¼	36,998	178,620	3,628,478	9,941,036	55.65
1920	505	40,266	193,160	3,293,061	8,997,436	46.58

(*d*) *Sewerage Scheme.* Sewerage works are under construction, by which the sewage will be treated by the activated sludge method. The survey work is being carried on, 20,268 houses having now been surveyed, and 77,368 lineal feet of main sewers, including a tunnel under the Brisbane River, have been constructed, while 19,224 lineal feet are under construction.

(ii) *Country Towns' Water Supply.* In addition to the city of Brisbane there were at the end of the year 1919 thirty towns in Queensland provided with water supply systems constructed by municipalities chiefly from Government loans. The subjoined statement gives particulars of all the water supply systems—exclusive of Brisbane—for the year 1919 :—

QUEENSLAND.—PARTICULARS OF COUNTRY WATER SUPPLY SYSTEMS, 1919.

		£			£
Cost of construction to 31/12/19		1,010,024	Expenditure	Office and salaries	18,121
				Construction	22,419
Receipts	Rates and sales of water	107,530		Maintenance	38,694
	Other	(*a*)20,881		*Interest & redemption*	30,967
				Other expenses	24,803
	Total receipts	128,411		Total	135,004
Assets		799,977	Liabilities		580,208

(*a*) Including £9,864 from Government loans.

4. **South Australia.**—(i) *Adelaide Water Supply System.* The water supply system of Adelaide is under the control of the Public Works Department. The total capital cost up to the 30th June, 1920, was £2,172,518, the total revenue being £3,543,470, and the area served approximately 106,465 acres.

The following table gives various particulars relating to the water supply of Adelaide for the years 1916 to 1920 inclusive :—

ADELAIDE WATER SUPPLY.—LENGTH OF MAINS, REVENUE, EXPENDITURE, AND CONSUMPTION OF WATER, 1916 TO 1920.

Year ended 30th June.	Length of Mains.	Gross Revenue.	Working Expenses.	Net Revenue.	Percentage of Net Revenue on Capital Cost.	Total Consumption of Water. (a)
	Miles	£	£	£	%	Million of Gallons.
1916	873	103,947	35,412	68,535	3.42	3,223
1917	882	118,951	32,974	85,977	4.26	4,113
1918	901	118,985	34,298	84,687	4.15	4,266
1919	914	126,110	36,142	89,968	4.33	5,292
1920	947	137,488	43,410	94,078	4.33	5,626

(*a*) In the Adelaide Water District there are no governing meters. The quantities shewn above are as recorded by gaugings taken at the reservoirs, and include evaporation and absorption.

(ii) *Adelaide Sewerage System.* In connexion with the sewerage system of Adelaide, which is also under the control of the Public Works Department, about 363 miles of sewers had been laid in the city and suburbs up to the 30th June, 1920.

The following table gives particulars relating to the Adelaide sewerage system for the years 1916 to 1920 inclusive :—

ADELAIDE SEWERAGE SYSTEM.—REVENUE AND EXPENDITURE, 1916 TO 1920.

Year ended the 30th June.	Revenue.			Expenditure.			Net Revenue.	
	Rates and Interest.	Sewage Farm. Sales of Produce, etc.	Total.	Maintenance.	Sewage Farm. Working Expenses.	Total.	Total.	Percentage on Capital Cost.
	£	£	£	£	£	£	£	%
1916 ..	56,606	21,207	77,813	11,410	14,432	25,842	51,971	6.39
1917 ..	57,488	13,664	71,152	11,350	10,794	22,144	49,008	5.96
1918 ..	59,345	19,060	78,405	12,054	11,945	23,999	54,406	6.55
1919 ..	60,808	14,697	75,505	13,226	10,409	23,635	51,870	6.12
1920 ..	65,744	20,332	86,076	13,396	10,650	24,046	62,030	7.21

The seaside town of Glenelg is served by separate sewage disposal works, including a pumping station, septic tank, lucerne plots, and filter beds. The net revenue for the year ended 30th June, 1920, was £1,501, being 3.25 per cent. on the capital cost. Up to the same date 15¾ miles of sewers had been laid.

The city of Port Adelaide has a sewerage system by which the sewage is pumped to the Sewage Farm. The capital cost of this work at 30th June, 1920, was £307,931. The revenue received for the year ended 30th June, 1920, was £6,460, the working expenses £4,064, leaving a net revenue of £2,396, representing 0.78 per cent. on capital cost. The length of sewers laid at the above date was 42¾ miles.

(iii) *Water Supply in Country Towns.* In South Australia there is a number of country water works under the control of the Public Works Department, but there are no fresh additions to be made to the particulars supplied in Year Book No. 12 (page 965).

5. **Western Australia.**—(i) *Water Supply, Sewerage and Drainage Department.* This Department has the management of the undermentioned water supplies :—(*a*) The Metropolitan Water Supply, Sewerage and Drainage Undertaking. (*b*) The Goldfields Water Supply Undertaking. (*c*) Mines Water Supplies, boring and well-sinking in mining districts, formerly a branch of the Mines Department. (*d*) Water supplies, sewerage and drainage, well-sinking, boring, etc., in agricultural districts, etc., formerly a branch of the Public Works Department.

(ii) *The Metropolitan Water Supply, Sewerage and Drainage Undertaking.*—(*a*) *Water Supply.* The Metropolitan Water Supply Works were first opened by a private company in October, 1890. Under the provisions of the Metropolitan Waterworks Act 1896, however, the works were purchased by the Government at a cost of £220,000, and were placed under the control of a Board, the functions of which were exercised from 1904 to 1909 by the Minister for Works. By the Metropolitan Water Supply, Sewerage and Drainage Act 1909, all water and sewerage works formerly vested in the Metropolitan Board were transferred to a Minister of Water Supply, Sewerage and Drainage. In August, 1912, the administration was transferred to the Water Supply Department. The supply of water is derived from five sources—(I.) the Victoria Reservoir, (II.) Bickley Brook pipehead dam, (III.) the Mundaring Reservoir, (IV.) Narrogin Brook, and (V.) artesian bores. For the year ending 30th June, 1919, the total consumption of water was 2,174 million gallons, exclusive of water supplied to railways from Walters Brook, Victoria Reservoir, and Narrogin Brook—an increase of 329 millions over the previous year. The number of services at that date was 33,301, and the length of mains was 623 miles.

(*b*) ***Financial Operations of Water Supply Branch.*** The following table gives particulars of the financial operations of the Metropolitan Water Supply Branch for each year ending the 30th June from 1916 to 1920 inclusive :—

METROPOLITAN WATER SUPPLY BRANCH.(a)—PARTICULARS OF FINANCIAL OPERATIONS, 1916 TO 1920.

Year ended the 30th June.	Capital Cost of Works.	Depreciation.	Net Capital Cost.	Gross Revenue.	Cost of Maintenance and Management.	Ratio of Working Expenses to Revenue.
	£	£	£	£	£	%
1916	997,650	201,834	795,816	103,668	37,987	36.60
1917	1,019,388	220,750	798,638	95,451	36,075	37.79
1918	1,057,444	240,650	816,794	91,380	34,670	37.94
1919	1,080,876	261,520	819,355	89,215	35,881	40.22
1920	1,119,910	270,498	849,412	96,881	44,829	46.27

(a) Perth, Fremantle, and Claremont combined.

(*c*) *Consumption of Water.* The following table shews the total annual supply, the average daily supply, and the average daily supply per house and per head of population during each financial year from 1916 to 1920 inclusive :—

METROPOLITAN WATER SUPPLY BRANCH.—CONSUMPTION OF WATER, 1916 TO 1920.

CENTRAL DISTRICT (INCLUDES PERTH, FREMANTLE, CLAREMONT, GUILDFORD, AND MIDLAND JUNCTION).

Year.	Average Daily Supply in ,000 Gallons.			Water Supply for Years in ,000 Gallons.			Number of Houses Supplied.	Estimated Population Supplied.	Average Daily Supply.	
	From Reservoirs.	From Bores.	Total.	From Reservoirs.	From Bores.	Total.			Per House.	Per Head of Population.
							No.	No.	Gals.	Gals.
1916	2,443	2,600	5,052	894,057	955,075	1,849,132	30,782	129,300	164	39.1
1917	1,929	3,179	5,108	704,251	1,160,464	1,864,715	31,698	133,130	161	38.4
1918	2,659	2,444	5,103	970,671	892,054	1,862,725	32,396	136,000	157	37.5
1919	2,463	3,496	5,959	899,194	1,276,122	2,175,316	33,196	152,700	179	38.9
1920	2,467	3,659	6,126	903,072	1,339,364	2,242,436	34,570	165,900	174	36.3

ARMADALE DISTRICT.

Year.	From Reservoirs.	From Bores.	Total.	From Reservoirs.	From Bores.	Total.	Number of Houses Supplied.	Estimated Population Supplied.	Per House.	Per Head of Population.
1916	23	..	23	8,300	..	8,300	83	300	274	76.6
1917	29	..	29	(a) 10,663	..	(a) 10,663	98	410	(a) 296	(a) 70.7
1918	30	..	30	10,954	..	10,954	102	428	294	70.1
1919	32	..	32	(a) 11,495	(b) 176	11,671	105	483	304	66.2
1920	37	..	37	(a) 13,342	(b) 322	13,664	107	514	350	72.8

(a) Includes water supplies to Railways. (b) From well.

(*d*) *Sewerage and Drainage in Perth and Fremantle.* The work of providing a sewerage system for Perth and Fremantle is still proceeding. Up to 30th June, 1920, 13,975 houses had been connected with the sewers. The revenue of the Sewerage and Drainage undertaking for 1918–19 was £54,457, as against £53,258 for the preceding year. The maintenance expenditure for the year amounted to £15,455, and interest and sinking fund charges to £48,871.

(iii) *Goldfields Water Supply Undertaking.* During the financial year 1919–20, the amount of water drawn for the Helena reservoir was 1,344,000,000 gallons, an increase on the previous year of 8,000,000 gallons. The gross revenue was £176,364, and the working expenses £93,238, leaving a surplus available towards interest and sinking fund of £84,126. The outlay for interest and sinking fund charges in respect of supplementary capital absorbed £33,523, leaving £50,603, payable to the State Treasury. During the financial year the State Treasury paid £168,813 interest and sinking fund on State loans in respect to these works, and the operations of the undertaking shewed a net deficiency of £118,210. Reticulation figures are as follows:—Towns reticulation, 238 miles; supply mains to towns, 80 miles; supply mains to mining centres, 72 miles; agricultural extensions, 480 miles; total mains, including main conduit, 1,221.

(iv) *Water Supplies for Towns.* Under the Water Boards Act 1904, the following water undertakings are administered by the Department:—Bridgetown, Brookton, Collie, Cue-Day Dawn, Geraldton, Leonora, Meekatharra, Menzies, Ora Banda, and Pingelly. Water supplies for Albany, Broome, Bunbury, Busselton, Carnarvon, Derby, Katanning, Port Hedland, Roeburne, Sandstone, Wagin, and Wyndham are administered by local boards under the supervision of the Department.

(v) *Mines Water Supplies.* At the present time the water stations under the control of the Chief Engineer for Water Supply number about 1,400, and are spread over an area of nearly 500,000 square miles. The principal works carried out by the Water Supply Department are as follows:—(*a*) Domestic supplies for mining towns and the supply of water for battery and general mining purposes. (*b*) Opening up the very remote portions of the State by means of tracks, of which there are about 4,000 miles. (*c*) The sinking of wells and bore-wells, also testing the country by means of boring to locate water, and thus enabling the mineral resources of the State to be systematically prospected. (*d*) Diamond drilling has also been carried out for the purpose of testing the country for minerals at depths unattainable with the ordinary boring plants. (*e*) Over 3,000 miles of stock routes have been opened up, and wells have been sunk at easy stages, capable of watering mobs of 400 head of cattle. Tanks, dams, and reservoirs have been made on the goldfields for the conservation of surface water, their total storage capacity being over 200,000,000 gallons, and their cost over £400,000.

(vi) *Water Supplies in Agricultural Areas.* Owing to the rapid development in agricultural districts in what a few years ago was practically unexplored country, and the consequent necessity for providing water for settlers, a large number of tanks were excavated, and wells sunk where suitable water had been proved by boring. Of 2,520 shallow bores put down, fresh water was obtained in 429, and stock water in 219, the others being salt or dry. The number of tanks excavated to 30th June, 1920, was 361; in addition, four tanks were enlarged, making a total approximate capacity of 131,956,000 gallons, and the number of wells sunk 299. The capital expenditure for the financial year ending June, 1920, was £9,673.

(vii) *Land Drainage.* Under the Land Drainage Act 1900 the drainage undertaking for the Torbay-Grassmere District, Wonnerup, and portion of Harvey and Waroona are

administered by the Department. Undertakings controlled by Boards under the same Act are East Jandakot, Harvey, Njookenbooroo, Stirling, Saidie, Wungong, Benger, and Wagerup.

6. **Tasmania.**—(i) *Hobart Water Supply.* The total capital cost to 30th June, 1921, was £368,789, but a considerable amount of reticulation work has been done out of revenue and not charged to capital account. The outstanding loans at 30th June, 1921, amounted to £317,805. At the same date the number of tenements supplied in the city and suburbs was 9,300, the population 43,905, and the length of reticulation mains 97 miles. The revenue and expenditure for the years 1916 to 1921 were as follows :—

HOBART WATERWORKS.—REVENUE AND EXPENDITURE, 1916 TO 1921.

Particulars.	1916.	1917.	1918.	1919.	1920.	1921.
	£	£	£	£	£	£
Revenue	24,801	21,677	24,160	26,832	28,287	29,570
Expenditure	27,676	28,794	26,490	27,408	30,696	32,175

(ii) *Hobart Sewerage System.* Up to 30th June, 1921, 74½ miles of sewers had been laid at a cost of about £196,943, and 7,319 tenements had been connected. The revenue for the year was £18,325. The suburb of New Town was amalgamated with the city on the 1st January, 1920, and the survey and plans for sewering this area are now being proceeded with. In connexion with the Queensborough District, now being sewered, 9¼ miles of sewers were laid up to 30th June, 1921, at a cost with outfall of £65,602, and 76 tenements were connected.

§ 4. Harbour Trusts.

1. **Introduction.**—In the chief ports and harbours of the Commonwealth, administrative bodies have been created, in whom is vested the control and management of the port with respect to dredging, wharf and harbour accommodation, pilotage, harbour dues, etc.

Of these Trusts or Boards some are purely departmental, some are nominated by Government, while others are comprised of members appointed by the municipal and other associations connected with the port. In the latter case, the Government is usually represented on the Board by one or more nominated members. The Boards and Trusts mentioned hereunder are the only ones for which information is at present available.

2. **Sydney Harbour Trust.**—(i) *Revenue, Expenditure, and Capital Cost.* The subjoined table gives particulars of the revenue and expenditure of the Trust, and also shews the total capital debt for properties, etc., vested in the Commissioners, the

amount of interest payable on the debt, and the balance of revenue after deducting expenditure, interest, and the amount of the Commissioners' salaries :—

SYDNEY HARBOUR TRUST.—REVENUE, EXPENDITURE, CAPITAL DEBT, INTEREST, AND BALANCE, 1901 AND 1916 TO 1920.

Year ended the 30th June.	Revenue.				Expenditure.	Total Capital Debt.	Interest.(b)	Balance.
	Wharfage and Harbour Rates.	Tonnage Rates and Berthing Charges.	From Other Sources.	Total.				
	£	£	£	£	£	£	£	£
1901(a)	42,784	3,208	12,324	58,316	11,275	4,692,782	55,554	− 8,513
1916..	274,551	17,630	197,540	489,721	171,951(c)	7,948,756	289,256	28,514
1917..	252,044	29,095	230,841	511,980	165,586(c)	8,598,930	330,954	15,440
1918..	280,476	26,862	269,121	576,459	170,854(c)	8,796,521	348,023	57,582
1919..	323,253	31,347	264,300	618,900	179,899(c)	8,691,972	336,823	102,178
1920..	323,306	22,398	312,609	658,313	206,450(c)	8,959,887	353,037	98,826

(a) For the period from 11th February to the 30th June, 1901. (b) The rate of interest charged each year is the average rate on the total capital debt of the State, which varies. (c) Including expenditure for the renewal, replacement, or reconstruction of wharves or buildings.

NOTE.—The minus sign (−) represents a loss.

(ii) *Dredging and Towing.* The subjoined statement gives particulars of the dredging and towing done by the dredges and tug-boats owned by the Trust :—

SYDNEY HARBOUR TRUST.—PARTICULARS OF DREDGING AND TOWING, 1901 AND 1916 TO 1920.

Year.	Dredging.			Towing Dredged Material.		
	Tons Dredged.	Total Expenditure.	Expenditure per Ton.	Miles run Towing.	Total Expenditure in Towing.	Expenditure per Mile Towing.
	Tons.	£	Pence.	Miles.	£	Pence.
1901 ..	317,500	3,696	2.79	29,277	2,849	23.35
1916 ..	2,092,918	28,253	3.24	46,581	11,268	58.05
1917 ..	1,938,130	31,697	3.93	43,847	11,950	65.41
1918 ..	1,319,455	26,780	4.87	36,577	16,367	107.39
1919 ..	1,848,993	26,981	3.50	45,711	19,263	101.14
1920 ..	1,345,287	37,140	6.62	42,292	25,547	127.95

3. **The Melbourne Harbour Trust.**—(i) *Construction and Development.* Particulars of the origin and constitution of this Trust will be found in Official Year Book No. 12, pp. 970 *et seq.* Since the publication of that volume, the port and harbour have been developed by the extension of existing works and the construction of new piers, wharves, &c. The river has been considerably widened throughout almost its whole navigable course, and has now three swinging basins. The depth at low water has been increased

to 27 feet. Further widening and deepening are being carried out, and additional wharves are being erected. Extensive shed accommodation is being provided on the Victoria Dock wharves, and a new central pier has been completed. The river and dock wharves carry sheds. The total length is 18,364 feet, covering an area of 987,580 square feet. The quantity of material raised by the dredging and excavation done in the improvement of the river and bay amounts to 69,000,000 cubic yards. During the ten years ending 31st December, 1920, the average cost of dredging per cubic yard was 2.96 pence and the cost of towing and depositing 4.28 pence, irrespective of depreciation of plant. The Trust has expended £334,774 in reclaiming land within its jurisdiction. The amount of material raised annually is about 2,652,000 cubic yards.

(ii) *Financial Operations.* The following table gives particulars of the revenue and *expenditure of the Trust from* 1916 to 1920 inclusive :—

MELBOURNE HARBOUR TRUST.—REVENUE AND EXPENDITURE, 1916 TO 1920.

Particulars.	1916.	1917.	1918.	1919.	1920.
REVENUE.					
	£	£	£	£	£
Rates, rents, etc.	311,395	312,654	314,777	323,253	380,203
Interest	170	31	123	193	46
Other receipts	11,109	7,610	10,691	10,851	10,253
Total	322,674	320,295	325,591	334,297	390,502
EXPENDITURE.					
	£	£	£	£	£
Management and general expenses ..	56,265	49,205	45,373	45,570	51,178
Interest	88,372	93,996	95,980	104,245	106,735
Total	144,637	143,201	141,353	149,815	157,913
Less standing charges added to works ..	21,135	19,632	23,595	23,495	29,150
Total	123,502	123,569	117,758	126,320	128,763
Wharfage and other refunds	1,140	1,378	2,382	1,677	2,529
Charges remitted on troopships ..	..	..	..	..	..
Consolidated revenue of Victoria ..	60,000	60,000	62,305	62,460	75,554
Flotation of loan expenses	..	1,005	3,012	7,956	300
Redemption of loans expenses ..	..	..	2,392	4,499	..
Maintenance	53,375	70,112	35,706	77,766	105,147
Total expenditure	238,017	256,064	223,555	280,678	312,293
Surplus on revenue account	84,657	64,231	102,036	53,619	78,209
Less depreciation and renewals account and sinking fund	51,364	51,747	52,000	52,500	52,500
Net surplus on revenue account ..	33,293	12,484	50,036	1,119	25,709

MELBOURNE HARBOUR TRUST.—REVENUE AND EXPENDITURE, 1916 TO 1920—*continued.*

Particulars.	1916.	1917.	1918.	1919.	1920.
CAPITAL EXPENDITURE.					
	£	£	£	£	£
Land and property	1,316	588	1,153	964	3,221
Deepening waterways	82,429	50,871	108,037	68,746	80,720
Wharves construction	105,803	62,246	37,321	77,305	50,084
Approaches construction	8,960	6,201	11,417	3,774	2,364
Other harbour improvements	35,946	26,923	7,352	3,068	2,936
Floating plant	25,190	3,814	811	1,435	834
General plant	2,853	1,728	130	509	883
Stock account	21,784	4,686	..	..	..
Total	284,281	157,057	166,221	155,801	141,042

4. **Geelong Harbour Trust.**—To the 31st December, 1920, this Trust had borrowed £591,000. The sinking fund at the same date stood at £27,954. The revenue receipts for the year 1920 were £50,020, and the disbursements £60,625.

5. **Bundaberg Harbour Board.**—The Harbour Board consists of eight members, instead of nine as heretofore, representing the district shire councils and the shipowners and exporters, with one Government nominee. The total exports for the year ending 31st December, 1920, amounted to 7,243 tons, as against 17,865 tons for the previous year. The decrease was owing to shipping troubles and prolonged drought. The principal items of export were:—Raw sugars, 235 tons; refined sugars, 2,196 tons; syrups and molasses, 444 tons; rum and spirits, 2,941 tons; copper ores, 120 tons. The revenue for 1920 amounted to £4,838, as against £5,470 for 1919; the expenditure for 1920 was £5,834 as compared with £6,751 for 1919. Dredging resulted in 28,500 tons of silt, etc., being lifted and deposited at sea.

6. **Cairns Harbour Board.**—For the year ended 31st December, 1920, the receipts from harbour and berthage dues and miscellaneous items amounted to £32,332, while the revenue from taxes and fixed rates was £30,257. The total income amounted to £34,826. The principal items of export were:—Raw sugar, timber, maize, fruit, meat, and tallow.

7. **Rockhampton Harbour Board.**—The principal items of export by water in 1920 were—wool, 26,215 bales; preserved and frozen meats, 6,776 tons; tallow, 1,420 tons; blister copper, 6,587 tons; and gold, £405,251 in value. For the year 1920 the receipts were £38,159, including loan advances, £14,835; and the expenditure was £43,554, including £8,991 interest on loans. The total net registered tonnage entering the port in 1920 was 422,105.

8. **Bunbury (Western Australia) Harbour Board.**—The Board was constituted in 1909, and consists of five members appointed by the Government. The jetty (including new extension of 700 feet) is 2,850 feet long, and can accommodate nine or ten vessels. The depth of water alongside ranges from 18 to 29 feet. Electric and steam gantry cranes are available. Water is laid on for shipping, and the jetty is lighted by electricity. The capital expenditure for the year ending 30th June, 1920, was £39,296, making the total capital expenditure to that date £377,688. The revenue for the year was £16,487, and the expenditure £8,013, the balance being paid into Consolidated Revenue to meet interest and sinking fund. The export tonnage for the year was made up as follows:—Jarrah timber, 87,246 loads of 50 cubic feet; wheat, 38,992 tons; coal (bunker), 16,314 tons; and miscellaneous goods, 747 tons; the total export value being £865,000. The total import tonnage was 8,235 tons.

9. **Fremantle Harbour Trust.**—For the year ended 30th June, 1920, the total revenue of the Fremantle Harbour Trust was £281,600, and the expenditure £130,740. The gross amount paid to the Treasury for the year was £149,680, being interest £73,872, sinking fund £19,301, renewals fund £2,000, and surplus revenue £54,513.

10. **Burnie and Table Cape (Tasmania) Marine Board.**—A breakwater has been constructed 1,250 feet in length with a depth alongside up to 42 feet at low water, together with three timber wharves, two 500 feet and one 400 feet long. The revenue for the year 1920 was £12,491, and the expenditure £18,015, including £13,473 interest on construction loan.

11. **Hobart Marine Board.**—The total capital debt on properties in connexion with the Harbour Trust vested in the Board is £106,350. The interest paid in 1920 amounted to £4,350, and the contributions to sinking fund, £1,235. The receipts and expenditure of the Board for the last five years were as follows:—

HOBART MARINE BOARD.—RECEIPTS AND EXPENDITURE, 1916 TO 1920.

Year.	Receipts.			Expenditure.		
	General.	Harbour Improvements, Debentures, etc.	Total.	General.	Harbour Improvements.	Total.
	£	£	£	£	£	£
1916	22,800	6,062	28,862	(a)21,803	7,801	29,604
1917	17,294	6,627	23,921	(b)17,247	5,212	22,459
1918	20,046	3,775	23,821	(c)20,887	3,131	24,018
1919	21,505	367	21,872	20,303	108	20,411
1920	30,584	4,568	35,152	27,392	3,859	31,251

(a) Including £4,000 debentures purchased. (b) Including £938 transferred from General Account to Harbour Improvements. (c) Including £3,775 transferred from General Account to Harbour Improvements.

12. **Launceston Marine Board.**—The total capital debt on 31st December, 1920, was £263,718, of which £216,480 was incurred on the Tamar Improvement Scheme. The revenue for 1920 was £39,569 and the expenditure £40,865.

§ 5. Fire Brigades.

1. **New South Wales.**—*Receipts and Disbursements of Board of Fire Commissioners of New South Wales.* The subjoined table shews the actual receipts and disbursements of the Board for the past five years in respect of the Sydney Fire District:—

NEW SOUTH WALES BOARD OF FIRE COMMISSIONERS.—RECEIPTS AND DISBURSEMENTS FOR SYDNEY FIRE DISTRICT, 1916 TO 1920.

Year.	Receipts.						Disbursements.
	From Government.	From Municipalities.	From Fire Insurance Companies.	From Firms.	From other Sources.	Total.	
	£	£	£	£	£	£	£
1916	29,071	29,071	28,883	188	2,205	89,418	98,934
1917	34,283	34,283	33,562	721	4,103	106,952	103,539
1918	34,231	34,231	33,858	373	3,950	106,643	107,104
1919	34,198	34,198	33,819	379	4,339	106,933	115,637
1920	47,808	47,808	47,218	589	3,815	147,238	143,262

The Sydney fire district includes the City of Sydney and suburbs, comprising a total area of 258 square miles. On the 31st December, 1920, the Board had under its control in this district 64 stations, 311 permanent men, 167 partially paid firemen, 10 steam and 51 motor fire engines, 28 horses, 140,690 feet of hose, and 512 telephone fire-alarms. The length of wire used for telephone lines was 1,281 miles.

2. **Victoria.**—(i) *Metropolitan Fire Brigades Board.* On the 30th June, 1920, this Board had under its control 41 stations, 250 permanent men, 102 partially-paid firemen, 48 special service firemen, 6 motor drawn steam fire engines, 8 petrol motor fire pumps, 47 other petrol motor appliances, 2 steam fire engines, 100,872 feet of hose, and 343 fire-alarm circuits having 1,058 street fire alarms, 1,038 containing telephones. The following table gives particulars as to the financial operations of the Board during each year from 1915 to 1919-20 inclusive :—

VICTORIA.—REVENUE AND EXPENDITURE OF METROPOLITAN FIRE BRIGADES BOARD, 1915 TO 1919-20.

Particulars.	1915.	1916.	1917-18.	1918-19.	1919-20.
ORDINARY RECEIPTS.					
	£	£	£	£	£
Contributions	77,794	86,771	84,418	85,569	95,225
Receipts for services ..	6,634	7,595	6,645	7,197	9,651
Interest and sundries ..	9,957	4,110	1,960	2,766	3,593
Total	94,385	98,476	93,023	95,532	108,469
ORDINARY EXPENDITURE.					
Salaries	52,633	55,612	58,900	60,915	67,060
Interest and sinking fund ..	11,442	13,397	13,610	14,971	12,970
Other expenditure ..	25,744	24,566	25,057	20,968	26,963
Total	89,819	93,575	97,567	96,854	106,993

(ii) *The Country Fire Brigades Board.* At the end of the year 1920 there were 111 municipal councils and 76 insurance companies included in the operations of the Act. All the brigades are volunteer brigades, but in the large centres a few permanent station-keepers and watchmen are employed. There were 135 registered brigades and 2,488 registered firemen at the end of the year 1920.

For the year 1920 the receipts of the Country Fire Brigades Board amounted to £18,616 and the expenditure to £18,544.

3. **Queensland.**—In the year 1919 there were thirty fire brigades organised in various towns in Queensland, and the following table gives particulars of revenue and expenditure for the year 1919:—

QUEENSLAND.—FIRE BRIGADES, 1919.

Receipts.	Amount.	Expenditure.	Amount.
	£		£
From Government	12,135	Salaries and wages ..	23,090
,, Local authorities ..	12,162	Building, repairs, etc. ..	4,937
,, Insurance companies ..	12,266	Plant, stores, clothing, etc. ..	4,938
,, Other sources	1,793	Other	5,676
Total	38,356	Total	38,641

At the end of the year 1919 the fire brigades staffs comprised 111 permanent men, 213 partially paid, and 100 volunteers. The Metropolitan Brigade at Brisbane and the South Brisbane brigade protect an area of 9½ square miles; their joint staffs comprise 70 men. They have three steam engines, four motor turbines, nine reels, consisting of four horse, two motor, and three hand reels, and 26,753 feet of hose. There are 2 telephone fire alarms and 199 call points.

4. **South Australia.**—The revenue of the Fire Brigades Board in 1920 amounted to £33,568. Brigades are established in the following municipalities, viz., Adelaide, Kensington and Norwood, Unley, Port Adelaide, Glenelg, Gawler, Kapunda, Moonta, Kadina, Port Pirie, Port Augusta, Wallaroo, Thebarton, Tanunda, and Balaklava. The strength of the brigades consists of 99 permanent firemen and 49 auxiliary firemen. The plant consists of 5 steam fire engines, 1 motor engine, 17 motor hose carriages, 1 floating fire engine, 4 hose reels, and 9 horses. The number of calls received during the year 1920 was 412, of which 16 were to fires of a serious nature. Of the total calls, 240 were in the metropolitan district.

5. **Western Australia.**—The receipts of the Western Australian Fire Brigades Board for the year 1920 amounted to £30,199, and the expenditure to £33,422. The whole of the brigades throughout the State are now controlled by this Board, and number four permanent, seven permanent and partially paid, six permanent and volunteer, one partially paid, and twenty-four purely volunteer brigades; making a total of forty-two. The staff includes a chief officer, deputy chief officer, third officer, motor engineer, electrical engineer, 11 other officers, 70 permanent firemen, 31 partially-paid firemen, and 555 volunteer firemen.

6. **Tasmania.**—The expenditure for the year 1920 for the Hobart Fire Brigade amounted to £4,790. There are also volunteer brigades under the control of local boards in most of the larger centres of population.

§ 6. Local Government Finance.

1. **Introduction.**—In the preceding parts of this section certain particulars have been given regarding local authorities in each individual State. It is proposed to give here in a comparative form for each State particulars regarding the financial operations of local governing bodies. The particulars given in the tables in the two next paragraphs

relate to financial years ending as follow :—New South Wales : for the calendar year 1919. Victoria : 30th September, 1919, except Melbourne, 31st December, and Geelong, 31st August, 1919. Queensland : calendar year 1919. South Australia : Corporations, 30th November, and district councils, 30th June, 1919. Western Australia : 31st October, 1919, except road districts, 30th June, 1919. Tasmania : calendar year 1919.

2. **Number, Revenue, Expenditure, and Valuation of Local Authorities.**—The following table gives particulars of the number, revenue, expenditure, and valuation of local authorities in each State and in the Commonwealth during the year indicated above. It should be noted that, excepting in Tasmania, the metropolitan water supply systems are not under municipal control ; the particulars given of revenue and expenditure for the five States other than Tasmania do not, therefore, include revenue and expenditure on account of these systems.

NUMBER, REVENUE, EXPENDITURE, AND VALUATION OF LOCAL AUTHORITIES(a) IN EACH STATE, 1919.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
No. of local authorities(a) ..	319	190	171	184	141	50	1,065
RECEIPTS.							
	£	£	£	£	£	£	£
Rates—							
General ..	2,678,636	1,560,968	828,877	278,617	225,699	66,713	11,346,282
Other (b) ..		344,827	322,368	104,149	113,791	173,948	
Government grants	2,377,964	90,429	86,833	63,835	31,287	33,967	
Loans (c) and other sources ..		877,901	250,871	137,113	387,231	304,258	
Total ..	5,056,600	2,880,125	1,488,949	583,714	758,008	578,886	
EXPENDITURE.							
Works, services, etc.	4,978,713	1,907,881	1,085,499	461,511	465,635	398,101	11,434,180
Interest on loans and overdrafts		257,057	19,423	15,160	85,094	101,796	
Redemptions, sinking funds, etc. ..		137,688	39,005	17,341	57,554	23,444	
Administration ..		226,692	165,632	71,262	61,859	39,338	
Other		388,570	269,417	45,006	92,690	22,812	
Total ..	4,978,713	2,917,888	1,578,976	610,280	762,832	585,491	
VALUATIONS.							
Capital value of perty ..	d207,673,921	357,437,822	63,907,745	99,905,202	f26,172,435	37,121,328	g792,218,453
Annual value of property ..	(e)	19,027,492	(e)	5,066,592	f1,506,691	1,872,336	(e)

(a) Including particulars for all areas controlled by local governing bodies responsible for the construction and maintenance of roads and streets, such areas being variously known in the several States as cities, towns, boroughs, shires, municipalities, road districts, etc. (b) Exclusive of rates for water supply and sewerage in metropolitan and most other principal towns, such rates being collected by special boards or general Government. (c) Exclusive of loans in connexion with extraordinary works of construction. (d) Unimproved capital value of all ratable property. (e) Not available. (f) Excluding District Road Boards. (g) Incomplete.

3. **Local Government Loans, 1919.**—The following table gives particulars for each State of loans raised by local authorities during the year 1919, of loans current at the end of that year, of liability on account of interest and sinking fund, and of loans maturing during 1919 :—

PARTICULARS OF LOANS RAISED BY LOCAL AUTHORITIES, 1919.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
Loans from general Government—							
Raised during year ..	..	19,286	81,020	..	..	26,455	126,761
Current at end of year ..	..	1,502,899	495,755	..	63,023	590,394	2,658,071
Loans from other sources—							
Raised during year ..	666,300	143,316	..	16,350	19,723	140,203	985,892
Current at end of year	9,100,428	3,538,530	1,052,974	367,762	1,796,432	1,333,257	17,189,383
Total—							
Raised during year ..	666,300	162,602	81,020	16,350	19,723	166,658	1,112,653
Current at end of year ..	9,100,428	5,041,429	1,548,729	367,762	1,859,455	1,929,651	19,847,454
Current loans, exclusive of those obtained from general Government, raised within the Commonwealth ..	(a)	3,538,530	(a)	367,762	(a)	471,018	(a)
Annual liability on account interest	(a)	(a)	19,114	16,455	86,843	93,845	(a)
Total sinking fund at end of year	(a)	466,225	(a)	23,729	381,771	197,489	(a)
Amount of loans maturing during year—							
Redeemed	(a)	(a)	..	15,870	19,272	34,965	(a)
Renewed	..	(a)	..	700	..	1,825	(a)

(a) Not available.

SECTION XXVII.

INDUSTRIAL UNIONISM AND INDUSTRIAL LEGISLATION.

§ 1. Development of Trade Unions in Australia.

1. **Historical Development of Trade Unionism in Australia.**—A special article, reviewing the development of trade unionism since its inception, appeared in Year Book No. 9, pp. 937–41.

2. **Registration under Trade Union Acts.**—The benefits conferred by registering trade unions under the Trade Union Acts in force in the various States are not held in much repute; consequently the statistics of registered trade unions of employees not only do not represent the position of unionism, but, in addition, the statistics themselves for past years are so defective as to be practically valueless. The particulars furnish no reliable indication of the numerical and financial position of trade unions. Some of the registered unions fail to supply returns; this non-supply may lead to cancellation of the registration. Some of the unions have obtained the cancellation of their certificates of registration, the apparent reason being that they proposed registering under the Commonwealth Conciliation and Arbitration Act or a State Arbitration Act. In Queensland, some of the largest labour unions withdrew from registration during 1911, mainly on account of the necessity for closer restriction of their objects as set forth in their rules, consequent on legal decisions affecting trade unions. In Victoria and in South Australia very few of the existing unions are registered under the Trade Union Acts. It will be seen, therefore, that the available information is too meagre for statistical purposes.

3. **Registration under Industrial Arbitration Acts.**—Western Australia and New South Wales up to 30th June, 1908, were the only States with Industrial Arbitration Acts under which industrial associations could be, and actually were, registered. The number of registered unions in New South Wales shewed a gradual increase from 1902 to 1907, the figures in the latter year being 109 unions of employers, with 3,165 members, and 119 unions of employees, with 88,075 members. Under the Industrial Disputes Act, which succeeded the Arbitration Act of 1901, it was not necessary to furnish this information. Since the Act of 1908, industrial organisation proceeded rapidly, owing to a general desire on the part of the workers to obtain the status necessary to entitle them to the advantages offered by the Act. The Act of 1908 was repealed by the Industrial Arbitration Act of 1912, and in 1912 there were 117 industrial unions of employers and 192 industrial unions of employees on the register. On the 26th April, 1921, there were 126 industrial unions of employers, and 160 industrial unions of employees on the register. Registration had been granted to 3 of the 160 employees' unions subject to amendment of rules. In the Queensland Industrial Arbitration Act of 1916 provision is made for the registration of any industrial association or trade union of employees. The Act does not provide for the registration of employers' associations. On the 30th June, 1917, 50 unions of employees were registered, and the number on the register at the 31st December, 1920, was 74. In South Australia, provision is made in the Industrial Code 1920 for the registration of industrial unions. This Act came into operation on 1st January, 1921. In Western Australia, the employers' unions numbered 45, with 441 members, in 1904; and 46, with 968 members, in 1920. From 1904 to 1908 unions of employees were in a fairly stationary condition. At the end of 1904 and 1905 there were 140 unions, with 15,743 and 15,461 members respectively, and in 1920, 114 unions, with 35,607 members. Registration under Commonwealth

legislation began in 1906. In that and the four following years, there was but one union of employers; another was registered in 1911. The unions of employees registered were 20 in 1906, with 41,413 members. On the 31st December, 1920, there were on the register 6 organisations of employers, with 6,170 members, and 122 organisations of employees, with 549,285 members.

4. **Types of Trade Unions in Australia.**—The trade unions in Australia are very diverse in character, and range from the small independent association to the large interstate organisation, which, in its turn, may be merely a branch of a British or international union. Broadly speaking, there are four distinct classes of labour organisations, viz.:—(i) the *local independent*, (ii), the *State*, (iii) the *interstate*, and (iv) the *Australasian or International*, but a number of variations occur from each of these classes. The leading characteristics of each of these types were briefly outlined in Labour Report No. 2 (pp. 7 to 9) issued by this Bureau.

5. **Total Number of Unions, 1920.**—As already stated, the figures for trade unions registered under the Acts do not represent the position of unionism in Australia. In 1912 the Labour and Industrial Branch of the Commonwealth Bureau of Census and Statistics was established, and by the cordial co-operation of the officials of the labour organisations, comprehensive figures relating to the development of organised labour are now available. The following table gives particulars of the number of trade unions, the number of branch unions, and the number of members in each State, the Northern Territory and the Commonwealth at the end of 1920:—

TRADE UNIONS, BRANCH UNIONS, AND MEMBERS, STATES, NORTHERN TERRITORY, AND COMMONWEALTH, 1920.

State or Territory.	Number of Separate Unions.	Number of Branches.	Number of Members.
New South Wales	214	871	277,519
Victoria	158	453	187,100
Queensland	115	340	103,784
South Australia	104	139	55,958
Western Australia	121	172	44,054
Tasmania	81	81	15,220
Northern Territory	3	..	815
Total	796	2,056	684,450
Commonwealth(*a*)..	388(*b*)	2,464(*b*)	684,450

(*a*) Allowing for interstate excess. (*b*) Number of distinct organisations and interstate groups of organisations in the Commonwealth—not the total number of organisations, which are practically independent and self-governing. (See next page).

In the preceding table the number of separate unions in each State refers to the number of unions which are represented in each State, exclusive of branches within a State. That is to say, each union represented in a State is only counted once, regardless of the number of branches in that State. Except in the last line, the number of branches indicates the number of branches of State head offices, which may, of course, themselves be branches of an interstate or larger organisation. In taking the total number of separate unions in the Commonwealth (see last line but one), it is obvious that, in the case of interstate and similar unions, there will be duplication, since each such union is counted once in each State in which it has any branches. In the figures given in the last line allowance has been made for this duplication. State branches of interstate or federated unions, as well as sub-branches within a State, are included under the heading "Branches"

in the third column—last line. It should be observed, however, that the scheme of organisation of these interstate or federated unions varies greatly in character, and the number of separate Commonwealth unions does not fairly represent the number of practically independent organisations in Australia. In some of these unions the State organisations are bound together under a system of unification and centralised control, while in others the State units are practically independent and self-governing, the federal bond being loose and existing only for one or two specified purposes. It may be seen, therefore, that there are 388 distinct organisations and interstate groups of organisations in the Commonwealth, having 2,464 State branches and sub-branches, and a total of 684,450 members.

6. **Number and Membership of Unions in the Commonwealth in Industrial Groups, at the end of the years 1912 to 1920.**—The following table shews the number of unions and members thereof in the Commonwealth at the end of the years 1912 to 1920. The number of unions specified refers to the number of different unions represented in each State; that is to say, interstate or federated unions are counted once in each State in which they are represented, but sub-branches within a State are not counted.

NUMBER AND MEMBERSHIP OF UNIONS IN THE COMMONWEALTH IN INDUSTRIAL GROUPS, AT THE END OF THE YEARS 1912 TO 1920.

Industrial Groups.	1912.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
				NUMBER OF UNIONS.				
I. Wood, Furniture, etc. ..	24	20	20	20	19	20	20	19
II. Engineering, Metal Works, etc.	71	76	77	76	75	77	77	76
III. Food, Drink, Tobacco, etc. ..	70	70	72	69	74	80	77	71
IV. Clothing, Hats, Boots, etc. ..	33	30	31	28	26	28	27	26
V. Books, Printing, etc. ..	30	29	30	29	29	30	29	26
VI. Other Manufacturing ..	80	80	78	78	84	84	84	84
VII. Building	60	67	63	63	60	58	57	56
VIII. Mining, Quarrying, etc. ..	28	27	27	26	25	26	20	18
IX. Railway and Tramway Services	25	32	31	28	34	40	43	43
X. Other Land Transport ..	19	25	24	23	22	23	23	22
XI. Shipping, etc.	41	63	66	65	73	72	71	69
XII. Pastoral, Agricultural, etc. ..	14	11	12	10	10	9	8	9
XIII. Domestic, Hotels, etc. ..	27	22	20	22	19	20	20	23
XIV. Miscellaneous	99	160	162	168	197	200	215	254
Total	621	712	713	705	747	767	771	796
				NUMBER OF MEMBERS.				
I. Wood, Furniture, etc. ..	18,569	19,071	16,172	14,762	16,365	18,953	21,156	23,691
II. Engineering, Metal Works, etc.	29,953	42,108	47,104	49,230	47,023	47,135	49,043	53,870
III. Food, Drink, Tobacco, etc. ..	28,132	39,763	38,504	41,515	41,229	40,953	46,569	49,447
IV. Clothing, Hats, Boots, etc. ..	16,691	17,593	21,885	25,962	29,150	31,856	33,620	40,325
V. Books, Printing, etc. ..	8,214	9,821	10,784	11,079	11,401	11,972	13,259	15,136
VI. Other Manufacturing ..	24,838	29,002	30,648	32,119	30,017	30,673	34,901	39,710
VII. Building	25,609	36,593	37,739	36,255	34,772	35,761	37,801	40,348
VIII. Mining, Quarrying, etc. ..	39,203	39,733	33,024	33,515	34,029	35,519	40,278	41,777
IX. Railway and Tramway Services	56,005	71,260	76,482	75,896	79,520	74,813	83,183	89,069
X. Other Land Transport ..	14,550	17,687	17,208	15,719	14,728	14,487	15,903	17,862
XI. Shipping, etc.	35,000	44,536	42,903	45,868	51,746	50,433	48,598	41,668
XII. Pastoral, Agricultural, etc. ..	52,180	44,593	38,334	37,679	40,735	44,178	46,794	42,923
XIII. Domestic, Hotels, etc. ..	14,289	11,135	9,269	9,907	10,163	11,169	14,702	19,853
XIV. Miscellaneous	69,991	100,376	107,975	117,050	123,309	133,855	137,378	169,271
Total	433,224	523,271	528,051	546,556	564,187	581,755	627,685	684,450

Particulars are given in Labour Report No. 11 (pp. 13-14) of the number of male and female members of unions and the percentage of such members on the total number of adult wage earners. Other tables in the same Report shew the classification of unions according to number of members and the number of central labour organisations. Information is also given below as to the development of trade unionism since 1901.

7. **Development of Trade Unions in Australia, 1901 to 1920.**—The following table shews for the years specified the total number of trade unions in the Commonwealth, and the number and membership of those unions for which returns are available.

NUMBER AND MEMBERSHIP OF TRADE UNIONS IN COMMONWEALTH, 1901 TO 1920.

Particulars.	1901.	1906.	1911.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Total number of unions ..	198	302	573	712	713	705	747	767	771	796
Number of unions for which membership available ..	130	253	542	712	713	705	747	767	771	796
Membership of those unions ..	68,218	147,049	344,999	523,271	528,031	546,556	564,187	581,755	627,685	684,450

These figures shew that while the number of unions in 1920 was more than double the number in 1906, the estimated membership during the same period increased nearly fourfold. During the last nine years the annual increase in membership was greatest in the year 1912, when it amounted to no less than 68,492, and least in 1915, when it was only 4,760.

8. **Interstate or Federated Unions, 1920.**—The following table gives particulars as to the number and membership of interstate or federated unions in 1920 :—

NUMBER AND MEMBERSHIP OF INTERSTATE OR FEDERATED UNIONS IN THE COMMONWEALTH, 1920.

Particulars.	Unions Operating in—					Total.
	2 States.	3 States.	4 States.	5 States.	6 States.(a)	
Number of Unions	15	14	14	16	40	99
Number of Members ..	19,494	52,556	53,448	123,258	294,622	543,378

(a) Certain Unions in this Group have, in addition to Branches in each of the six States, a Branch in the Northern Territory.

It appears, therefore, that 99 out of the 388 separate associations and groups of associations in the Commonwealth are organised on an interstate basis. The membership of these 99 unions amounts to 543,378, or no less than 79.4 per cent. of the total membership (684,450) of all unions.

9. **Central Labour Organisations.**—In each of the metropolitan towns, as well as in a number of other industrial centres, delegate organisations, consisting of representatives from a group of trade unions, have been established. Their revenue is raised by means of a per capita tax on the members of each affiliated union. In most of the towns where such central organisations exist, the majority of the local unions are affiliated with the central organisation, which is usually known as the Labour or the Trades Hall Council or the Labour Federation. In Western Australia a unified system of organisation extends over the industrial centres throughout the State. In this State there is a provincial branch of the Australian Labour Party, having a central council and executive, and metropolitan and branch district councils, to which the local bodies are affiliated. The central council, on which all district councils are represented, meets periodically. In the other five States, however, the organisation is not so close, and though provision usually exists in the rules of the central council at the capital town of each State for the organisation of district councils or for the representation on the central council of the local councils in the smaller industrial centres of the State, the councils in each State are, as a matter of fact, independent bodies.

The table below shews the number of metropolitan and district or local labour councils, together with the number of unions and branches of unions affiliated therewith, in each State at the end of the year 1920 :—

CENTRAL LABOUR ORGANISATIONS.—NUMBER, AND UNIONS AFFILIATED, 1920.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
Number of Councils	3	5	4	3	10	1	26
Number of Unions and Branch Unions affiliated ..	144	183	50	67	181	27	652

The figures given in the preceding table as to number of unions do not necessarily represent separate unions, since the branches of a large union may be affiliated to the local trades councils in the several towns in which they are represented.

Between the trade union and the central organisation of unions may be classed certain State or district councils, organised on trade lines and composed of delegates from separate unions, the interests of the members of which are closely connected by reason of the occupations of their members, such, for example, as delegate councils of bakers, bread carters, and mill employees, or of unions connected directly or indirectly with the iron, steel, or brass trades, or with the building trades.

§ 2. Laws Relating to Conditions of Labour.

1. **Tabular Statement of Statutes affecting Labour.**—The statutes in force at the end of 1920 in the several States of the Commonwealth, which, more or less directly, affect the general conditions of labour, are shewn in the table hereunder :—

LABOUR LAWS.—TABLE OF STATUTES IN FORCE IN AUSTRALIAN STATES, 1920.

New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
1. *General.*					
Factories and Shops 1912 Early Closing 1899, 1900, 1906, 1910, 1915 and 1919 Saturday Half-Holiday 1910 Eight Hours 1916, 1920 Sunday Trading (Refreshment Rooms) 1916	Factories and Shops 1915, 1919, 1920 (2)	Factories and Shops 1900, 1908, 1914, 1916 (2), 1920	Industrial Code 1920 Early Closing 1911, 1912	Factories and Shops 1920	Factories 1910, 1911, 1917 Shops Closing 1911, 1913
2. *Prevention of Strikes and Regulation of Rates of Wages*—					
Industrial Arbitration 1912, 1916, 1918 (2), 1919, 1920	Factories and Shops 1915 1919, 1920 (2)	Industrial Arbitration 1916	Industrial Code 1920	Industrial Arbitration 1912, 1920	Wages Boards 1920
3. *Mining Industry*—					
Mines Inspection 1901, 1904 Coal Mines Regulation 1912, 1913, 1917	Mines 1915 .. Coal Mines Regulation 1915	Mining 1898, 1901, 1902, 1912, 1914, 1915, 1920 Mines Regulation 1910, 1912, 1916	Mining 1893, 1895, 1900, 1911, 1918	Mining 1904, 1919, 1920 Mines Regulation 1906, 1911, 1915 Coal Mines Regulation 1902, 1915	Mining 1917, 1918, 1920 Mines and Works Regulation 1915
4. *Security of Wages to Wage Earners*—					
Contractors' Debts 1897	Employers and Employees 1915	Contractors' and Workmen's Lien 1906 Wages 1918	Workmen's Liens 1893, 1896	Workmen's Wages 1898	..
Attachment of Wages Limitation 1900	..	Wages 1918 ..	Wages Attachment 1898	..	Wages Attachment 1900
Truck 1900, 1901, 1918	..	Factories and Shops (as above)	Industrial Code 1920	Truck 1899, 1900, 1904	..
Bankruptcy 1898 (preference to wages)	Insolvency 1915	Insolvency 1874, 1876	Insolvency 1886, 1887, 1896, 1914, 1915, 1918	Bankruptcy 1892, 1898	Bankruptcy 1870, 1899
5. *Accommodation, Homes, etc.*—					
Shearers' Accommodation 1901	Shearers' Hut Accommodation 1915	Workers' Accommodation 1915	Shearers' Accommodation 1905, 1916	Shearers' Accommodation 1912	..
..	Closer Settlement (Workers' Homes) 1915	Miners' Homestead Leases 1913 (2)	..	..	..
..	..	Workers' Homes 1919	..	Workers' Homes 1911, 1912, 1914	Homes 1920
6. *Inspection of Machinery, etc.*—					
Scaffolding and Lifts 1912 Boiler Inspection Regulations (under Factories and Shops 1912)	Boilers' Inspection 1915 Lifts Regulation 1915	Inspection of Machinery 1915 Inspection of Scaffolding 1915	Steam Boilers and Engine Drivers 1911, 1913 Lifts Regulation 1908 Scaffolding Inspection 1907, 1908	Inspection of Machinery 1904, 1911	Inspection of Machinery 1902, 1909, 1913

LABOUR LAWS—TABLE OF STATUTES—*continued.*

New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
7. *Trade Unions*—					
Trade Unions 1881 Trade Unions Re-registration 1920	Trade Unions 1915	Trade Union 1915	Trade Unions 1876	Trade Unions 1902	Trade Unic 1889
8. *Relations of Masters and Servants*—					
Masters and Servants 1902 Apprentices 1901 Apprentices (Amendment) 1915	Employers and Employees 1915 Masters and Apprentices 1915	Apprentices 1828, 1844 Wages 1918	Masters and Servants 1878	Masters and Apprentices 1873 Masters and Servants 1892	Master and S vant 18 1882, 18 1887
..	Servants' Registry Offices 1915	Labour Exchanges 1915	Employees' Registry Office 1915	Employment Brokers 1909, 1912, 1918	..
9. *Liability in case of Accidents*—					
..	Employers and Employees 1915	..	Employers' Liability 1884, 1889	Employers' Liability 1894	Employers' I bility 18 1898, 1903
Workmen's Compensation 1916, 1920 (3)	Workers' Compensation 1915	Workers' Compensation 1916 (2)	Workmen's Compensation 1911, 1918, 1919, 1920	Workers' Compensation 1912, 1920	Workers' Co pensation 1918, 1920

2. **Registered Factories.**—The number of establishments registered under Factories Acts is shewn below :—

FACTORIES REGISTERED UNDER ACTS, 31st DECEMBER, 1919.

State.	Number of Registered Factories.	Numbers Employed.		
		Males.	Females.	Total.
New South Wales	9,003	84,474	32,431	116,905
Victoria	8,221	75,999	40,370	116,369
Queensland(*a*)	3,180	21,980	7,847	29,827
South Australia	1,833	14,512	6,026	20,538
Western Australia	1,216	10,158	3,009	13,167
Tasmania(*b*)	963	7,048	1,513	8,561
Commonwealth	24,416	214,171	91,196	305,367

(*a*) At 31st March. (*b*) At 30th June.

FACTORIES REGISTERED UNDER ACTS, 31st DECEMBER, 1920.

State.	Number of Registered Factories.	Numbers Employed.		
		Males.	Females.	Total.
New South Wales ..	9,745	92,566	33,479	126,045
Victoria	8,631	76,672	40,174	116,846
Queensland(*a*)	3,282	24,167	8,547	32,714
South Australia	1,960	15,455	5,208	20,663
Western Australia(*c*) ..	1,216	10,158	3,009	13,167
Tasmania(*b*)	1,004	7,869	1,739	9,608
Commonwealth	25,838	226,887	92,156	319,043

(*a*) At 31st March. (*b*) At 30th June. (*c*) Particulars for 1919. Figures for 1920 not available.

3. Comparative Statement of Factories Law in Australia.—The tables on pp. 994 to 999 of Year Book No. 11 shew at a glance the chief provisions of the Factories and Shops Acts in the Commonwealth. Since the issue of that edition, new Acts have been passed in some States and Amending Acts in others, the effect being briefly as follows :—

(i) *New South Wales.* Early Closing (Amendment) Act 1919. Tobacconists' and hairdressers' shops are to close on 4 days at 7 p.m., on one day (Wednesday or Saturday optional) at 1 p.m., and on Fridays at 10 p.m.

(ii) *Victoria.* Factories and Shops Act 1919. The hour for closing shops on Friday nights is altered from 10 p.m. to 9 p.m.

(iii) *South Australia.* Industrial Code 1920. This Code consolidates the previous Factories Acts, and makes some important alterations, the principal being that the minimum wage to be paid to any employee in a factory is 10s. per week, and the total number of hours of employment as regards women and boys over 16 when overtime is worked, is limited to 55 per week.

(iv) *Western Australia.* Factories and Shops Act 1920. A considerable number of alterations have been made in the provisions relating to factories and shops, the more important of those which relate to factories being (*a*) the number of hands constituting a factory is now four or more, instead of six ; (*b*) no premium whatever may be demanded ; (*c*) the age of admission of girls into factories is raised to 15 years ; (*d*) the maximum number of working hours for boys under 16 years and females is reduced to 44 per week and 8½ per day, with not more than 4½ hours continuous for children under 14 years and women ; (*e*) overtime is limited to two hours per day, on two days per week, which must not be continuous, and 52 days in a year, while overtime pay must be at the rate of time and a half ; (*f*) the employment of women is prohibited for six weeks before or after childbirth ; (*g*) girls under 16 must not be engaged in typesetting, nor persons under 16 in dry-grinding or match-dipping, nor girls under 18 in melting or annealing glass, nor persons under 18 in charge of a lift ; (*h*) all factories must be registered annually.

In shops the maximum number of hours which may be worked is reduced to 48 for male adults and to 44 for boys under 16 and women, while the latter may not be employed for longer than 8¾ hours per day, except on one day a week when 9½ hours may be worked. There must also be at least one seat for every three women employed.

4. Mining Acts.—Under the Mining Acts the employment underground of all females and of boys under fourteen years is prohibited. A minimum age, usually seventeen, is fixed for employment as lander or braceman at plats and landing places ; no lander, braceman, underground worker, or man in charge of motive power may be employed more than eight hours a day. A large number of scientific provisions for the protection of the lives and health of miners is also inserted in the Acts. Engine drivers must hold certificates of competency. Persons may be licensed to certify to the condition of boilers. Provision is made to enable injured persons or the relatives of persons killed to recover damages if the injury or death results from a breach of the regulations referred to above. Inspection of mines is fully provided for. Sunday labour is forbidden. In New South Wales and (since 1st February, 1910) Victoria still more advanced mining legislation exists ; numerous sections are designed to ensure the well-being of the workers, such as limitation of hours, etc.

5. Employers' Liability and Workmen's Compensation Acts.—In each of the States, Acts have been passed allowing compensation to workers who have been killed or injured while engaged in industrial occupations. In the Commonwealth, one Act provides for compensation to all workers employed by the Commonwealth, and another to all seamen working on ships registered in Australia. In New South Wales, amendments of the Workmen's Compensation Act made provision for workmen exposed to dust and for Broken Hill miners. A conspectus of these Acts is given in the pages immediately following.

CONSPECTUS OF WORKMEN'S

Heading.	New South Wales.	Victoria.	Queensland.	South Australia.
Name of Act ..	Workmen's Compensation Act 1916 and 1920 (3).	Workmen's Compensation Act 1915	The Workers' Compensation Act 1916 (2) and 1918.	The Workmen's Compensation Act 1911, 1918, 1919, and 1920
Definition of Employer	Includes any body of persons, corporate or incorporate, and the legal representative of a deceased employer.	Includes any body of persons, corporate or incorporate.	Includes persons, firms, companies and corporations employing workers.	Includes any body of persons, corporate or incorporate.
Nature of work to which Act applies.	Any person who is under contract of service or apprenticeship, whether by way of manual labour, clerical work or otherwise.	Manual workers. Other workers with incomes up to £250.	Any person (including a domestic servant) who works under a contract of service or apprenticeship, whether by way of manual labour, clerical work or otherwise, including tributers in mines and jockeys.	Manual only, with incomes up to £5 a week.
Workers expressly excluded.	Casuals, outworkers, persons whose remuneration exceeds £525 per annum, and members of the employer's family dwelling in his house.	Workers other than manual earning over £250. Police, outworkers, members of employer's family.	Persons earning over £400. Casuals, police, subscribers to superannuation fund, members of employer's family, salesmen, canvassers, collectors, or persons in receipt of commission.	Persons earning over £8 a week. Outworkers, members of employer's family, seamen whose injury occurs outside jurisdiction, agricultural, horticultural, viticultural, dairying or pastoral workers where machinery is not used, clerks, domestic servants.
Employer not liable to pay compensation for	Injury disabling for less than one week.	Injury incapacitating for less than a week.	Injury incapacitating for less than three days.	First week of injury if disabled for less than two weeks.
In event of insolvency maximum amount of compensation admitted as first charge on assets per individual.	£200.	£200.	Insurance compulsory in State Accident Insurance Fund.	£100.
Compensation in case of Death.				
If dependents left ..	3 years' earnings, or £300, whichever larger; maximum, £500.	3 years' earnings, or £200, whichever larger; maximum, £500.	3 years' earnings, or £300, whichever larger; maximum, £600.	4 years' earnings, or £200, whichever larger; maximum, £300.
If no dependents, maximum amount for medical attendance and funeral expenses.	£20.	£50.	£50.	£20.
Compensation in case of Incapacity.				
Weekly payment ..	66⅔ % of average weekly earnings; maximum, £3.	Half average weekly earnings; maximum, 30s.	Half average weekly earnings; maximum, £2, minimum, £1.	Half average weekly earnings; maximum, single man 30s., married man £2.
Maximum total liability	£750.	£500.	£750	£500.
Compensation for Workers over 60 years of age who have entered into an agreement.				
Death, with dependents—Minimum ..	..	£50.	..	£50.
Incapacity—Minimum weekly payment ..	..	5s., or quarter of weekly earnings, whichever larger.	..	5s.
Maximum total liability	..	£50.	..	£50.

COMPENSATION ACTS IN AUSTRALIA.

WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH. (Employees.)	COMMONWEALTH. (Seamen.)
Workers' Compensation Act 1912 and 1920.	The Workers' Compensation Act 1918.	Commonwealth Workmen's Compensation Act 1912.	Seamen's Compensation Act 1911.
Same as South Australia.	Same as South Australia.	The Commonwealth.	Same as South Australia.
Manual, clerical, or otherwise with income up to £300 a year.	Work under contract of service or apprenticeship by way of manual labour, clerical work, or otherwise, on land or water.	Manual, clerical, or otherwise.	Navigation or working of ships registered in Australia. Seamen shipped under Articles of Agreement in Australia while under Commonwealth law included.
Persons whose remuneration exceeds £400 a year. Casuals, police, outworkers, members of employer's family.	Casuals, outworkers, police force, domestic servants under 16 years and not working 8 hours per day, and persons whose weekly earnings do not exceed £4.	Persons not employed in manual labour earning over £500 a year. Outworkers, naval and military forces on active service.	Seamen on vessels ordinarily propelled by oars, and those in naval or military service.
Same as South Australia.	Injury incapacitating for less than three days.	..	Same as South Australia.
£150.	£100.	..	Full amount.
3 years' earnings, or £400, whichever larger; maximum, £500.	3 years' earnings, or £200, whichever larger; maximum, £400.	3 years' earnings, or £200, whichever larger; maximum, £500.	3 years' earnings, or £200, whichever larger; maximum, £500.
£100.	£30.	£30.	£30.
Medical attendance up to £1. Half average weekly earnings; maximum, £2 10s.	Half average weekly earnings; maximum, £2, minimum, £1.	Half average weekly earnings; maximum, £2.	Half average weekly earnings; maximum, 30s.
£500.	£500.	..	..
			(If seamen entitled to Commonwealth Old-age pension, amount of compensation and pension together not to exceed 30s. weekly.)
£100.	£100.	..	..
10s.	20s.	..	..
£100.	£100.	..	..

CONSPECTUS OF WORKMEN'S

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.	SOUTH AUSTRALIA.
Compensation for infirm workers who have entered into an agreement.				
Death, Minimum payment	..	£50.	..	£50.
Incapacity—Minimum weekly payment ..	..	5s., or quarter of weekly earnings, whichever larger.	..	5s.
Maximum total liability	..	£50.	..	£50.
Compensation for workers under 21 years of age earning less than 20s. weekly.				
Weekly payment ..	Average weekly earnings; maximum, 15s.	Average weekly earnings; maximum, 10s.	..	Average weekly earnings; maximum, 10s.
Waiting time ..	None.	One week.	Three days. Compensation from date of accident if incapacity lasts over three days.	One week. No compensation for first week unless incapacity lasts two weeks.
Period after which lump sum can be substituted for weekly payment.	Six months.	Six months.	Any time.	Six months.
Tribunal, if claim not settled by agreement.	Committee representative of employer and his workmen, if existing, or arbitration, or Judge of District Court or by an authorised stipendiary or Police Magistrate.	Judge of County Court or Police Magistrate.	Insurance Commissioner, Industrial Magistrate, Supreme Court.	Arbitrator. If arbitrator not agreed on within one month, special Magistrate. Appeals to Supreme Court.
Regulations for worker leaving the State in which he was injured.	If permanent incapacity likely, quarterly substituted for weekly payments in case of worker ceasing to reside in the State.	Same as South Australia.	If permanent incapacity proved, 156 times weekly payments substituted for weekly payments in case of worker leaving Commonwealth.	If permanent incapacity likely, quarterly substituted for weekly payments in case of worker leaving State.
Proceedings for compensation not maintainable unless commenced within	Six months.	Six months.	Six months.	Six months.

6. Other Acts.—Other legislation regulating conditions of labour has been enacted by the States. The British *Conspiracy and Protection of Property Act* (38 and 39 Vic., c. 86) has been adopted in all the States except New South Wales and Queensland. Servants' registry offices are placed under administrative control, and the rates of commission chargeable are fixed by regulation. Power is given to workmen to attach moneys due to a contractor who employs them, in order to satisfy a claim for wages, such wages being made a first charge on moneys due to a contractor. Workmen are given a lien for wages over material whereon they are working, even if it becomes part of other property. This is in addition to the common law lien, which ceases when possession of the property is parted with. Workmen's wages are protected from attachment. In Victoria, provision is made for the compulsory resumption of suburban lands to provide workmen's homes.

7. General Results of Industrial Legislation.—The results of the legislation described must be sought in the Reports of the Inspectors of Factories of the several States, and in the Reports issued by the Labour and Industrial Branch of this Bureau.

COMPENSATION ACTS IN AUSTRALIA—continued.

WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH. (Employees).	COMMONWEALTH. (Seamen).
£100.	£50, or 39 times average weekly earnings, whichever larger.	..	..
10s.	10s., or quarter of weekly earnings, whichever larger.	..	..
£100.	£100.	..	..
Average weekly earnings; maximum, 20s.	Average weekly earnings, maximum, 20s.	Same as New South Wales.	Same as New South Wales.
Three days.	None.	None.	One week. No compensation for first week unless incapacity lasts two weeks.
Six months.	Two months.	Six months.	Six months.
Local Court.	Commissioner (under Local Courts Act 1896) in Court of Requests.	Arbitrator or County Court.	Arbitrator or County Court.
Weekly payments continue in case of worker leaving State.	Same as South Australia.	If permanent incapacity likely, quarterly substituted for weekly payments in case of worker leaving Australia.	If permanent incapacity likely, quarterly substituted for weekly payments in case of worker leaving Australia.
Six months.	Six months.	Six months.	Six months, or 18 months if ship lost at sea.

Generally speaking, the perusal of these reports and of the reports of Royal Commissions which have inquired into the working of the Acts, affords satisfactory evidence that the Acts have, on the whole, effected their objects.

§ 3. Legislative Regulation of Wages and Terms of Contract.

1. ***General.***—*Two systems, based upon different principles, exist in Australia for* the regulation of wages and general terms of contracts of employment. A " Wages Board " system exists in Victoria and Tasmania, and an Industrial Arbitration Court in Western Australia. In the industrial legislation of New South Wales, Queensland, and South Australia, both systems are embodied, Industrial or Wages Boards, as well as Industrial Courts, being instituted. In accordance with the provisions of the Acts in New South Wales and Queensland, the Industrial Courts in these States have been exercising the functions of Boards, and the work of the existing Boards has been greatly curtailed. Practically all the awards in these States during the last three years have been made by the Industrial Courts. In Victoria, Wages Boards' decisions may be reviewed by the Court of Industrial Appeals. In New South Wales, Industrial Arbitration Acts of 1901

and 1905 instituted an Arbitration Court. This court expired on 30th June, 1908, having delivered its last judgment on the previous day. Wages Boards were substituted under the Industrial Disputes Act 1908, and subsequent years; while the Act of 1912 introduced the mixed system. The Industrial Arbitration (Amendment) Act, assented to on 22nd March, 1918, amends the law for the regulation of the conditions of industries and industrial arbitration. The Act provides for the establishment of a Board of Trade and of special and deputy Courts of Industrial Arbitration, and also for the appointment of Industrial Boards on the recommendation of the Court. In South Australia the Industrial Code 1920 provides for the constitution of an Industrial Court, which may have the assistance of assessors. Provision is also made for the appointment of a Board of Indnstry having somewhat similar powers to the Board of Trade in New Sonth Wales. There is also the Arbitration Court of the Commonwealth, which has power, however, to deal only with matters extending beyond the limits of a single State. The Arbitration (Public Service) Act was assented to on the 7th October, 1920. The Act provides for the appointment of an Arbitrator whose duties shall be to determine all matters submitted to him relating to salaries, wages, rates of pay, or terms or conditions of employment of officers or employees of the Commonwealth Public Service. The Industrial Peace Act 1920, which was assented to on 13th September, 1920, applies to industrial matters in relation to conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State. Provision is made that the Governor-General may appoint a special tribunal or tribunals for the prevention of and settlement of any industrial dispute or disputes.

The chief aims of the Wages Board system are to regulate hours, wages, and conditions of labour and employment, by the determination of a Board usually brought

TRIBUNALS FOR THE REGULATION OF

Particulars.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.
Name of Acts	Industrial Arbitration Act 1912, 1916, 1918 (2), 1919, and 1920	Factories and Shops Act 1915, 1919, and 1920 (2)	Industrial Arbitration Act 1916
Nature of Tribunals	Court of Industrial Arbitration. Industrial Boards. Board of Trade	Court of Industrial Appeals. Wages Boards	Court of Industrial Arbitration. Industrial Boards
How Tribunals are brought into existence	Court constituted by Act. Industrial Boards by the Minister on recommendation of Industrial Court. Board of Trade constituted by Act	Court constituted by Act. Wages Boards by Governor-in-Council	Court constituted by Act. Industrial Boards by Minister on recommendation of Court
Scope of Acts	To any industry, etc., as the Minister on the recommendation of the Court may direct. Includes Government servants. Board of Trade declarations *re* living wage, apprenticeship, etc.	To any process, trade, business, or occupation specified in a resolution of both Houses of Parliament or Order in Council (as the case may be). Government servants are not included (*a*)	To all callings and all persons (including Government servants) except (1) State children; (2) domestic servants; (3) persons engaged in farming operations on dairy, fruit and agricultural farms
How a trade is brought under review	Reference by Court or Minister, or by application to the Board by employers (having not less than 20 employees) or industrial unions	Usually by petition to Minister	Upon reference by an industrial union or employer, or any twenty employees in any calling, or the Minister, or of the Court

(*a*) "The Railways Classification Board Act" 1919 provides for a special tribunal to regulate wages and hours of employment of railway employees.

into existence for any specified industry or group of industries by petition or application. Under the Industrial Arbitration Court system an industry does not technically come under review until a dispute has actually arisen. Most of the Acts, however, have given the President of the Court power to summon a compulsory conference. In Victoria, where the Wages Board system is in force, there is no provision against strikes, but in Tasmania, where that system has also been adopted, penalties are provided for a lock-out or strike on account of any matter in respect of which a Board has made a determination.

Particulars were given as to the historical development, mode of constitution and general provisions of Wages Boards and Arbitration Courts in Year Book No. 9, pages 960 to 966. These refer to the regulation of wages and working conditions, and the prevention and settlement of industrial disputes.

2. **Comparative Statement of Tribunals for Regulating Wages in Australia.**—The table on pages 910 to 913 shews at a glance the Acts which operate in fixing wages, the constitution and function of tribunals enacted under them, and the effect and extent of the tribunals' decisions. It will be seen that in all the States there is machinery for the regulation of wages.

Under the authority of the Commonwealth Government a War Precautions Coal Board appointed in November, 1916, to regulate wages, working conditions and other matters in the coal mining industry issued "Orders" during 1916 and 1918, but was inactive during 1917. Special tribunals to deal with the coal industry and the coke industry were appointed by the Industrial Peace Act of 1920.

WAGES IN TRADES IN AUSTRALIA, 1920.

SOUTH AUSTRALIA.	WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH.(a)
Industrial Code 1920	Industrial Arbitration Act 1912 and 1920	Wages Boards Act 1920	Conciliation and Arbitration Act 1904–1920. Arbitration (Public Service) Act 1911 and 1920. Industrial Peace Act 1920 (2)
Industrial Court. Industrial Boards. Board of Industry.	Court of Arbitration	Wages Boards	Court of Conciliation and Arbitration
Court constituted by Act. Industrial Boards by the Minister on the recommendation of the Board of Industry. Board of Industry constituted by the Act	Constituted by the Act	By Governor pursuant to resolutions of Parliament and by Proclamation of Governor when Parliament not in session	Court of Record constituted by the Act
To any business, trade, manufacture, or calling carried on by way of trade or for purposes of gain (except agriculture). Includes Government servants. Board of Industry declarations re living wage, etc.	All industrial occupations other than domestic service. Includes certain Government workers	To any process, industry, business, etc., except agricultural, horticultural, or pastoral pursuits	Industrial disputes extending beyond limits of any one State or in Federal Capital or Northern Territories
Court—Submission by Minister, President (after compulsory conference), employers or employers' association, by not less than 20 employees or employees' association. Industrial Boards—By petitions, etc.	Industrial disputes referred by President or by an Industrial Union or Association	Usually by petition to Minister	Industrial disputes either certified by Registrar, submitted by organisation, referred by a State Industrial authority or by President after holding abortive Compulsory Conference

(a) Particulars shewn relate to Conciliation and Arbitration Act 1904-20. A brief review of the Arbitration (Public Service) Act and the Industrial Peace Act is given in Labour Report, No. 11.

TRIBUNALS FOR THE REGULATION OF

Particulars.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.
President or Chairman Tribunal	Court—Judge of Supreme Court, or a District Court Judge, or a barrister-at-law of 5 years' standing appointed by the Governor. Industrial Boards—Appointed by Minister on recommendation of Court. Board of Trade—Appointed by the Governor-in-Council	Court—Judge of Supreme Court appointed by Governor. Wages Boards—Appointed by Governor-in-Council on nomination of Board, or failing that on nomination by Minister	Court—Judge of Supreme Court or District Court or a barrister or solicitor of not less than 5 years' standing appointed by Governor. Industrial Boards—Appointed by Board, or failing that, by Minister
Number of Members of Tribunal	Court—Constituted by Judge or an additional or deputy judge or any two or more together. Industrial Boards — Chairman and 2 or 4 other members. Board of Trade—President, Deputy-President, 4 commissioners and 1 or more for rural industries	Court—President and 2 other persons. Wages Boards—Not less than 4 nor more than 10 members and a chairman	Court—Not exceeding 3, including president. Industrial Boards—Two or 4 in addition to chairman
How ordinary members are appointed	Court—Appointed by Governor. Industrial Boards—Appointed by Minister on recommendation of Court. Board of Trade—By Governor-in-Council	Court—Nominated by representatives of employers and employees on Wages Board or failing that by Minister. Wages Boards—Nominated by Minister. But if one-fifth of employers or employees object, representatives are elected by them	Members of Court by Governor-in-Council. Members of Industrial Boards by Minister on nomination by employers and employees respectively, and on the recommendation of the Court
Decisions—how enforced	By Registrar and Industrial Magistrate	By Department of Labour in Courts of Petty Sessions before Police Magistrates	By Court of Industrial Arbitration on application of any party to the award or agreement, or of Registrar, or Industrial Inspector
Duration of decision	For period fixed by Tribunal, but not more than 3 years, and after such period until varied or rescinded	Until altered by Board or Court of Industrial Appeals	12 months and thereafter, unless sooner rescinded or varied
Appeal against decision	To Court of Arbitration against decision of Boards	To the Court of Industrial Appeals	To Court of Industrial Arbitration against decision of Boards. Case may be stated for opinion of Full Bench
Can Preference to Unionists be declared?	Yes	No	Yes
Provision against strikes and lock-outs	Fourteen days' notice of intention must be given. Secret ballot, two-thirds of members must vote. Penalty for illegal strike, £500; for lock-out, £1,000	Determination may be suspended by Governor-in-Council for any period not exceeding 12 months	Provision made for taking ballot; majority must vote in favour of strike or lock-out. Penalties for strikes or lock-outs, employer or industrial union, £100; other cases, £10
Special provisions for Conciliation	Special Commissioner. Conciliation Committees for colliery and other districts. Registered agreements	None	Compulsory Conference. Registered agreements

WAGES IN TRADES IN AUSTRALIA, 1920—*continued.*

SOUTH AUSTRALIA.	WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH.
Court—Present President appointed by Act. On vacancy occurring, Governor to appoint person eligible for appointment as a Judge of Supreme Court. Industrial Boards—Appointed by Minister on nomination of Board, or failing such nomination, on selection by Board of Industry. Board of Industry—President or Deputy-President of the Industrial Court	A Judge of the Supreme Court appointed by Governor	Appointed by the Governor	President appointed by Governor-General from Justices of High Court for a term of 7 years.
Court—Constituted by President or a Deputy-President, or any 2 or more of them together. Industrial Boards—Chairman and 4, 6, or 8 other members. Board of Industry—President and 4 Commissioners	Three, including President	Chairman, and as many representative members as the Minister declares	President. Provision is made for appointment of Deputy-Presidents
Court—Deputy Presidents by Governor. Industrial Boards—By Minister on nomination of employers and employees respectively, failing that on selection of President. Board of Industry — Appointed by Governor	Appointed by Governor, one each on recommendation of unions of employers and workers respectively	By Minister on nomination by employers and employees. If less or more than required nominations, selected by Minister	Deputy-Presidents appointed by Governor-General from Justices of High Court or Judges of Supreme Court of a State
By Factories Department before Special Magistrate or Justices. Appeal to Industrial Court	By Arbitration Court on complaint of any party to the award or Registrar or an Industrial Inspector	By Chief Inspector under Factories Act with consent of the Minister	By proceedings instituted by Registrar, or by any organisation affected, or a member thereof
Court—Period specified, but not more than 3 years, and thereafter until new award or order made. Industrial Boards—Period specified, not exceeding 3 years, unless previously cancelled by Minister or varied or rescinded by Board or Court	For period fixed by Court, not exceeding 3 years, or for 1 year and thenceforward from year to year until 30 days' notice given	For 2 years, and thereafter until new determination made	For period fixed by award, not exceeding 5 years, and thereafter, unless the Court otherwise orders, until a new award has been made
To Industrial Court	No appeal except against imprisonment or a fine exceeding £20	To Supreme Court against validity of determination only	No appeal. Case may be stated by President for opinion of High Court
No	No	No	Yes; ordinarily optional, but mandatory if in opinion of Court preference is necessary for maintenance of industrial peace or welfare of society
Penalty £500, or imprisonment for 3 months	Employer or Industrial Union, £100; other cases, £10	Organisations, £500; individuals, £20	Penalty, £1,000
Compulsory Conference. Registered agreements	Special Commissioner. Compulsory Conference. Registered agreements	None	Compulsory Conference. Court may temporarily refer to Conciliation Committee. Registered agreements

§ 4. Operations under Wages Board and Industrial Arbitration Acts.

1. **General.**—Particulars regarding operations under the Commonwealth Arbitration Acts and the various State Acts for the regulation of wages, hours, and conditions of labour, shewing the number of boards authorised and constituted, and which had or which had not made any award or determination in each State; the number and territorial scope of awards or determinations, and the number of industrial agreements in force, were first compiled to the 31st December, 1913.

These particulars have from time to time been revised, and reviews to the end of approximately quarterly periods have been published in the periodical Labour Bulletins to the 30th June, 1917, and thereafter in the Quarterly Summaries to the 31st December, 1920. Information has also been compiled and included in the later issues of the Labour Bulletin and Quarterly Summary respecting the estimated number of work-people affected by awards or determinations and industrial agreements in each State. In addition, a brief quarterly epitome has been given of the number of awards and determinations made and industrial agreements filed under the Act in force in each State and the Commonwealth Conciliation and Arbitration and the Commonwealth (Public Service) Arbitration Acts. The following tabular statement gives particulars of the operations in each State and under the Commonwealth Statutes during each quarter of the years 1919 and 1920 respectively:—

AWARDS AND DETERMINATIONS MADE AND INDUSTRIAL AGREEMENTS FILED IN EACH QUARTER OF 1919 AND 1920.

State and Commonwealth.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Full Year.	
	Awards or Determinations made.	Agreements Filed.	Awards or Determinations made.	Agreements Filed.	Awards or Determinations made.	Agreements Filed.	Awards or Determinations made.	Agreements Filed.	Awards or Determinations made.	Agreements Filed.
					1919.					
New South Wales	20	10	35	12	32	10	45	16	132	48
Victoria ..	21	..	17	..	13	..	18	..	69	..
Queensland ..	18	5	22	4	28	7	59	13	127	29
South Australia	9	2	8	2	19	2	15	2	51	8
Western Australia	..	3	3	7	1	16	2	11	6	37
Tasmania ..	6	..	4	..	5	..	6	..	21	..
Commonwealth	3	13	2	3	6	44	10	100	21	160
Total ..	77	33	91	28	104	79	155	142	427	282
					1920.					
New South Wales	19	17	52	6	38	12	30	29	139	64
Victoria ..	48	..	28	..	18	..	31	..	125	..
Queensland ..	42	14	44	6	46	..	36	3	168	23
South Australia	10	..	8	3	25	2	31	6	74	11
Western Australia	..	19	..	18	..	12	2	16	2	65
Tasmania ..	21	..	9	..	15	..	9	..	54	..
Commonwealth ..	5	66	8	87	2	9	17	21	32	183
Total ..	145	116	149	120	144	35	156	75	594	346

Owing to the prevailing drought conditions and the advent of war during the year 1914, varying restrictive measures were introduced either for the suspension or curtailment of the operations of industrial tribunals in each of the States. During the second quarter of 1915 these restrictions were somewhat relaxed in New South Wales and Queensland, and early in the third quarter operations gradually assumed normal conditions in all the States. During the third and fourth quarters of 1915 greater activity was evidenced in each State, and this activity continued during the subsequent years. The number of awards and determinations (594) made by the Commonwealth Conciliation and Arbitration Court, the State Industrial Courts and Wages Boards, during the year 1920, was higher than the number made during the previous twelve months, when 427 awards and determinations were issued, while the number of industrial agreements entered into during 1920 was 346, as compared with 282 during the year 1919. The number of awards issued by the Commonwealth Conciliation and Arbitration Court was 32, as compared with 21 during the previous year. The number of industrial agreements filed under the provisions of the Commonwealth Act shewed an increase in comparison with the number filed during the previous year, the number filed during 1920 being 183, as against 160 during the year 1919.

2. **Boards Authorised, and Awards, Determinations, and Agreements in Force.**—In the following table particulars are given for all States, excepting Western Australia, of the number of Boards authorised and constituted, and including operations under the Commonwealth and the Western Australian Arbitration Acts, of the number of awards, determinations, and industrial agreements in force in all States at the 31st December, 1913, and during the four quarters of 1920 :—

PARTICULARS OF BOARDS AND OF AWARDS, DETERMINATIONS, AND INDUSTRIAL AGREEMENTS IN FORCE AT 31st DECEMBER, 1913 AND DURING EACH QUARTER OF 1920.

Dates.	Boards Authorised.	Boards Constituted.	Boards which had made Awards or Determinations.	Awards or Determinations in Force.(a)	Industrial Agreements in Force.
31st December, 1913	505	501	387(b)	575(c)	401
31st March, 1920	508	502	471	935	923
30th June, 1920	523	518	490	970	1,011
30th September, 1920	527	521	486	1,008	1,005
31st December, 1920	475(d)	470(d)	440(d)	1,041	972

(a) Including awards made by Arbitration Courts. (b) Owing to a number of awards made under the New South Wales Industrial Disputes Act (1908) being still in force, the Boards constituted for such industries under the Industrial Arbitration Act (1912) had not made any awards. (c) Excluding awards or determinations which expired in New South Wales (under the Act of 1908) on 31st December, 1913. (d) Reduction in the number of Boards authorized, etc., is due to the dissolution on the 9th December, 1920, by the Industrial Code 1920 of Wages Boards in South Australia appointed under the Factories Acts 1907 to 1915. Provision is made in the Industrial Code 1920 for the appointment of Industrial Boards.

It will be observed from the particulars set out in the above table that considerable expansion of the principle of the fixation of a legal minimum rate of wage and of working conditions took place during the seven years ending 31st December, 1920. At the end of 1920, 466 additional awards or determinations were in force in the Commonwealth. The number of industrial agreements* made and in force under the various Acts increased during the seven years under review by 571.

* The registration of industrial agreements is not provided for under the Act in force in Victoria, but such agreements may be registered and filed under the provisions of the Commonwealth Conciliation and Arbitration Act to operate in any or in all States.

In the following table particulars are given for each State and the Commonwealth of the number of Boards authorised, etc., at the 31st December of the years 1913 and 1920 :—

BOARDS AUTHORISED AND CONSTITUTED, AWARDS, DETERMINATIONS AND AGREEMENTS IN FORCE AT 31st DECEMBER, 1913 AND 1920.

Particulars.	At 31st Dec.	C'wlth.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Total.
Boards Authorised, etc.(a)—									
Boards authorised ..	1913	..	(b) 216	135	75	56	..	23	565
	1920	..	265	161	(c)	(d) 2	..	47	475
Boards constituted ..	1913	..	(b) 223	132	74	51	..	21	501
	1920	..	265	159	(c)	(d) 2	..	44	470
Boards which have made Awards or Determinations	1913	..	123	123	74	47	..	19	386
	1920	..	245	150	(c)	(d) 2	..	43	440
Awards and Determinations—									
Awards and Determinations in force ..	1913	17	(e) 265	127	73	54	18	21	575
	1920	106	359	155	212	100	64	45	1,041
State Awards and Determinations—									
Applying to whole State	1913	..	32	8	3	..	..	15	58
	1920	..	31	30	44	1	5	43	154
Applying to Metropolitan area	1913	..	58	..	28	53	13	1	153
	1920	..	106	1	56	72	46	..	281
Applying to Metropolitan and Country areas	1913	..	49	105	1	..	1	5	161
	1920	..	133	114	43	5	2	2	299
Applying to Country areas	1913	..	126	14	41	1	4	..	186
	1920	..	89	10	69	22	11	..	201
Commonwealth Awards—									
Awards in force in each State	1913	..	13	17	15	16	9	13	..
	1920	..	71	77	50	69	48	62	..
Industrial Agreements—									
In force	1913	228	75	..	5	11	82	..	401
	1920	673	107	..	56	31	105	..	972
Commonwealth Agreements in force in each State	1913	..	132	120	68	62	57	61	..
	1920	..	220	305	57	71	37	107	..
Number of Persons working under State Awards and Determinations (estimated) ..	1920	..	275,000	165,000	100,000	27,000	35,000	15,000	617,000

(a) The figures for New South Wales are exclusive of Demarcation Boards. (b) Including Boards which were subsequently dissolved owing to alteration in the sectional arrangement of industries and callings. (c) Reduction in the number of Boards is due to the repeal during 1917 by the Industrial Arbitration Act 1916 of Industrial Boards appointed under the Industrial Peace Act 1912. (d) Wages Boards appointed under the Factories Act 1907 to 1915, with the exception of those which had any matter part heard, were dissolved by the Industrial Code 1920 on the 9th December, 1920. Provision is made in the new Act for the appointment of Industrial Boards. (e) Omitting a number of awards which expired on the 31st December, 1913.

SECTION XXVIII.

DEFENCE.

§ 1. Military Defence.

1. **Development of State Military Systems.**—A detailed historical account of the Australian defence forces prior to federation will be found in the Official Year Book *No. 2, pp.* 1075–1080. See also Official Year Book *No.* 12, *p.* 999.

The strength of the military forces of the several States prior to federation was generally nearly up to establishments. On 31st December, 1900 (the eve of federation), it was :—New South Wales, 9,338 ; Victoria, 6,335 ; Queensland, 4,028 ; South Australia, 2,932 ; Western Australia, 2,696 ; Tasmania, 2,024 ; total for Commonwealth, 27,353. *Cadets, reservists, and rifle club members are excluded.*

2. **Development of Commonwealth System.**—Under the terms of the Constitution Act 1900, the Commonwealth took over control of defence matters in March, 1901. Particulars regarding development up to the initiation of the existing system will *be found in Official Year Book No. 12, p. 999.*

3. **The Present Military System.**—The defence of Australia at the present time is enacted and prescribed by the Defence Acts 1903–1918 of the Federal Parliament. The provisions of the Acts of 1903, 1904, and the regulations under them contain the main working principles of Australian defence, the necessary expansion being provided for in the amendments of 1909, 1910, 1911, 1912, 1914, 1915, 1917, and 1918. The main provisions of the Acts up to 1912 inclusive will be found in Official Year Book No. 6, pp. 1050 *et seq.* The principal provision of the Act of 1909 is the enactment of compulsory military or naval training, with regulations for registration, enrolment, and exemption. Statutes were passed subsequently, extending or modifying the legislative provisions, removing obstacles and difficulties, and, where necessary, providing machinery. (See also Year Book No. 12, pp. 1000 *et seq.*)

(i) *Military Population.* In connexion with the numbers available, the figures of male population are of interest. The total number at cadet age, *i.e.*, between 12 and 18, at the Census of 1911 (3rd April) was about 260,000 ; at citizen soldier age, *i.e.*, between 18 and 26, 366,000 ; these latter, with 330,000 at ages between 26 and 35, give 696,000 as the total males at the best period for military service. In addition, there were about 614,000 between 35 and 60.

(ii) *Record for Anthropometric Purposes.* In connexion with the medical inspection it has been arranged that the colour and character of hair, and the colour of eyes of those examined, shall be recorded for statistical purposes.

A systematic record of height, weight and chest measurement of each trainee is also made.

In Official Year Book No. 11, pp. 1203–1209, an analysis is given of the data collected for the year ended 30th June, 1912.

(iii) *Compulsory Training.* By the Defence Acts of 1903 and 1904 all male inhabitants between the ages of eighteen and 60 years were made liable to serve in Australia with the defence forces *in time of war.* The more recent Acts make training and service compulsory up to the age of twenty-six years *in time of peace.* By the Act of 1909 the principle of universal liability to be trained was made law for the first time in any English-speaking community. On 1st January, 1911, by proclamation, compulsory training was established. Details concerning the method of carrying out the scheme, with *modifications suggested by the report of Lord Kitchener, will be found in Official Year* Book No. 12, pp. 1001, *et seq.*, but owing to limits of space they have been omitted from the present Year Book.

(iv) *Rifle Clubs.* These form part of the Reserves. On the 31st December, 1920, there were 1,307 clubs with a membership of 55,853, and in addition 128 miniature rifle clubs having a membership of 4,092. Applications to form rifle clubs are made to the commandant of a district, and must be signed by not less than thirty male persons between the ages of sixteen and sixty, who are required to be natural-born or naturalised British subjects, and are not undergoing training under the universal clauses of the Defence Act. Persons, however, who are temporarily exempted from universal training may be permitted to join rifle clubs during the period of their temporary exemption. Members of rifle clubs must fire an annual course of musketry, but do not undergo any systematic drill.

(v) *Allotment of Units to Divisional Brigade, Battalion, and Training Areas.* The organisation is territorial, and the divisions based upon infantry units. There are 93 battalion areas, forming 22 brigades. The areas have approximately equal numbers of males of citizen soldier age (about 1,300), and each furnishes a battalion of infantry, and a proportion of other troops. The figures shewn in the following tables are approximate, and include the recruits (19–20) year, but not the 25–26 year men. (See also Year Book No. 12, p. 1005.)

ALLOTMENT OF UNITS TO BRIGADE, BATTALION, AND TRAINING AREAS, 31st DECEMBER, 1920.

State.	Brigade Areas.	Battalion Areas.							Training Areas.
			Providing the undermentioned units.						
			Infantry and Engineers, A.S.C. and A.M.C.	Light Horse.		Field Artillery.			
	No.	No. of Battalions.	Nos.	Squadrons.	Nos.	Batteries.	Nos.	Total Nos. in Training Areas.	No.
New South Wales ..	8	32	36,228	28	1,770	15	1,474	39,472	69
Victoria	7	31	29,039	31	2,745	19	1,254	33,038	67
Queensland ..	3	12	13,416	14	1,576	7	826	15,818	35
South Australia ..	2	9	9,921	11	701	5	672	11,294	25
Western Australia ..	1	5	3,773	3	220	3	542	4,535	14
Tasmania	1	4	3,874	3	162	3	386	4,422	11
Total ..	22	93	96,251	90	7,174	52	5,154	108,579	221

(vi) *Instructional Staff.* The instructors provided for training consist of 298 officers and 806 warrant and non-commissioned officers of the instructional staff (permanent), and 218 area officers (temporary). They supervise the training of light horse, infantry, and senior cadet units, and instruct in the non-technical duties of specialist corps. Additional officers and non-commissioned officers of the permanent troops instruct in technical work.

(vii) *The Royal Military College, Duntroon,* Federal Territory, is established for the purpose of providing trained officers for the permanent forces. Admission is by open competitive examination, a definite number of vacancies being allotted to each State of the Commonwealth on a population basis. Between 20 and 25 staff-cadets are thus admitted annually, and, in addition to these, ten staff-cadets from New Zealand are nominated yearly by the Dominion Government, which pays £377 10s. per annum for each. The age for admission is between sixteen and nineteen years, though there is a provision in the regulations by which members of the forces over nineteen years of age who pass the prescribed examination, and are approved by the Governor-General-in-Council, may be admitted. The college was opened in June, 1911. The normal college course lasts for four years, and is followed by a tour of duty in England or India, after which graduates will be appointed to staffs or permanent troops in Australia and New Zealand. During the late war the course was temporarily modified. Over 158 staff-cadets were (June, 1918) specially graduated, and appointed to units serving

at the front with the Australian and New Zealand forces. No fees are charged for maintenance and instruction, each staff-cadet being credited with an allowance of 5s. 6d. per diem to meet expenses of necessary uniform, books, instruments, etc. The course of instruction comprises both educational and military work, the former being mainly completed in the first two years. Cadets are prepared for light horse, artillery, engineer, and infantry duties.

In December, 1920, the staff numbered—military, 31; civil, 19.

(viii) *Railways and Defence.* A War Railway Council, consisting of military and railway officers, was instituted in 1911. Its chief duties are to furnish advice and information regarding railway transport for military purposes, and to secure co-operation between the Commonwealth Defence Department and the States' Railway Departments in regard to concentration and mobilisation of troops. To prevent delay in the transport of troops, particularly that caused by the transhipment of baggage and implements of war, the Council has recommended the adoption of a uniform railway gauge on lines linking up the States' capitals. An Engineer and Railway Staff Corps has been instituted, and numbered 44 officers on 31st December, 1920. Fuller details will be found in Official Year Book No. 6, pp. 1070–1.

(ix) *The Universal Training System in Operation.* Details regarding the various stages in the operation of the system will be found in Official Year Book No. 12, p. 1007, but limits of space preclude their repetition in the present volume.

4. Strength of Military Forces.—(i) *Strength in each District, 1901 to 1919.* There was little alteration in the numbers serving in the Australian military forces from the institution of the Commonwealth to the year of the introduction of the compulsory training system. From 1913 to 1918, however, the annual increase was considerable. The following table shews the development :—

STRENGTH OF MILITARY FORCES, 1901 AND 1913 TO 1920.

(a) District.	1901. (b) 1/3/01	1913. 30/6/13.	1914. 30/6/14.	1915. 30/6/15.	1916. 30/6/16.	1917. 30/6/17.	1918. 30/6/18.	1919. 30/6/19.	1920. 30/6/20.
Headquarters	..	(c)277	(c)330	(c)416	(c)360	(c)377	(c)473	(c)362	(c)463
1st Q'land ..	4,310	4,625	5,844	7,734	9,379	11,415	15,890	13,938	13,323
2nd N.S.W.	9,772	12,105	16,365	21,661	24,761	28,783	41,751	37,851	38,558
3rd Victoria	7,011	10,840	14,326	18,823	23,830	29,131	39,492	34,770	30,762
4th Sth. Aus.	2,956	3,228	4,708	6,527	8,154	9,767	12,629	12,667	10,590
5th W. Aus.	2,283	1,685	2,046	3,004	4,197	4,882	6,333	5,508	4,400
6th Tasmania	2,554	1,777	2,026	2,807	3,446	4,007	5,609	4,585	4,569
Total ..	28,886	34,537	45,645	60,972	74,127	88,362	122,186	109,881	102,665

(a) Approximately conterminous with boundaries of States. (b) Date of Commonwealth taking over the military forces from States. (c) Including cadets at Royal Military College of Australia, Duntroon.

(ii) *Strength of the Various Arms.* The numbers of the different arms of the service on the 31st December, 1920, were as follows :—

ARMS OF THE COMMONWEALTH DEFENCE, 31st DECEMBER, 1920.

Light Horse ..	7,174	Army Nurs'g Service	352	Engineer and Railway Staff Corps	44
Field Artillery ..	5,361	Army Pay Corps ..	814	Pay Department, Rifle Ranges, Rifle Clubs, Officers, etc.	545a
Garrison Artillery	1,752	Army Vet'ary Corps	37	Royal Milit'ry C'lege	164a
Engineers ..	4,262	Ordnance Departm't (including Armament Artificers) ..	291a	Provost	28
Infantry ..	87,507	Area Officers ..	144		
Intelligence Corps	6	Administrative and Instructional Staff	936	Grand Total ..	114,458
Army Service Corps	1,807				
Army Medical Corps	3,071				
Aust. Flying Corps	163				

(a) Includes civilians.

(iii) *Classification of Land Forces.* The following table shews the strength of the land forces in each State, classified according to nature of service, on the 31st December, 1920 :—

CLASSIFICATION OF LAND FORCES,(*a*) 31st DECEMBER, 1920.

Branch of Service.	Head-quarters.	1st Military District.	2nd Military District.	3rd Military District.	4th Military District.	5th Military District.	6th Military District.	Total.
Permanently employed	(*b*)393	368	839	1,010	189	225	154	3,178
Citizen Soldiers ..	..	16,060	40,320	33,478	11,434	4,750	4,526	110,577
Engineer and Railway Staff Corps ..	..	8	11	7	5	9	4	44
Army Nursing Service ..	..	32	88	26	..	204	2	352
Area Officers ..	..	28	36	39	24	10	7	144
Rifle Clubs	..	11,978	16,245	14,231	4,802	6,590	3,861	57,797
Senior Cadets.. ..	..	13,221	37,230	28,811	9,933	6,186	3,569	98,950
Unattached List of Officers	..	61	79	82	56	10	16	304
Reserve of Officers ..	..	407	224	2,770	570	633	240	4,844
Chaplains	..	78	96	77	26	44	24	345
Grand Total ..	(*a*)393	42,250	95,168	80,531	27,129	18,601	12,403	276,535

(*a*) Also Australian Flying Corps, 183. (*b*) Including cadets at Royal Military College of Australia, Duntroon.

(iv) *Numbers Serving under Compulsory Provisions.* The next table shews those registered and training under the compulsory system, distinguishing citizen forces, senior cadets, and junior cadets :—

UNIVERSAL TRAINING. — REGISTRATIONS, MEDICAL EXAMINATIONS, EXEMPTIONS, AND NUMBERS SERVING, CITIZEN FORCES, 31st DECEMBER, 1920 (1895 TO 1902 QUOTAS).

Military District.	Total Registrations.	Total Medically Examined.	Number Medically Fit.	Percentage Medically Examined who are Fit.	Number Unfit and Temporarily Unfit.	Percentage Medically Examined who are Unfit and Temporarily Unfit.	Total Exemptions Granted in Training Areas.	Total Number Liable for Training.
1902 QUOTA (TO 30TH JUNE, 1920).								
1st ..	4,089	3,298	2,736	82.96	562	17.04	1 544	2,587
2nd ..	10,409	8,555	7,448	87.06	1,107	12.94	2,542	7,249
3rd ..	7,946	7,086	6,030	85.1	1,056	14.90	1,462	6,044
4th ..	2,477	2,341	1,982	84.66	359	15.34	410	1,978
5th ..	1,335	1,260	1,068	84.76	192	15.24	212	1,068
6th ..	1,122	846	710	83.92	136	16.08	351	710
Total ..	27,378	23,386	19,974	85.41	3,412	14.59	6,521	19,636

1895 TO 1902 QUOTAS (TO 31ST DECEMBER, 1920).

Military District.	Total Registrations in Training Areas.								
	Quota, 1895.	Quota, 1896.	Quota, 1897.	Quota, 1898.	Quota, 1899.	Quota, 1900.	Quota, 1901.	Quota, 1902.	Total.
1st ..	4,629	4,391	4,572	4,584	4,915	4,865	4,453	4,260	36,669
2nd ..	9,844	9,947	9,871	9,346	9,607	10,058	9,970	10,451	79,094
3rd ..	5,989	6,147	6,036	6,044	6,747	7,325	7,390	7,248	52,926
4th ..	3,304	3,219	2,958	2,914	3,014	3,226	2,878	2,805	24,318
5th ..	932	1,030	1,107	1,146	1,222	1,178	1,244	1,347	9,206
6th ..	1,237	1,324	1,293	1,144	1,248	1,381	1,222	1,181	10,030
Total ..	25,935	26,058	25,837	25,178	26,753	28,033	27,157	27,292	212,243

UNIVERSAL TRAINING.—REGISTRATIONS, ETC.—*continued.*

1895 TO 1902 QUOTAS—*continued.*

Military District.	Exemptions Granted.									Number Liable for Training.
	Quota, 1895.	Quota, 1896.	Quota, 1897.	Quota, 1898.	Quota, 1899.	Quota, 1900.	Quota, 1901.	Quota, 1902.	Total.	
1st	2,642	2,526	2,576	2,424	2,323	2,081	1,694	1,548	17,814	18,161
2nd	3,867	4,273	4,166	3,674	3,392	3,481	2,798	2,063	28,614	45,294
3rd	1,910	1,871	1,852	1,574	1,487	1,174	1,002	932	11,802	36,909
4th	1,165	1,167	1,119	1,121	1,192	1,121	796	730	8,411	15,038
5th	551	617	536	469	393	213	205	234	3,218	5,756
6th	544	513	577	463	437	480	286	309	3,609	6,038
Total	10,679	10,967	10,826	9,725	9,224	8,550	6,781	6,806	73,558	127,796

UNIVERSAL TRAINING.—REGISTRATIONS, MEDICAL EXAMINATIONS, AND EXEMPTIONS TO THE 31st DECEMBER, 1920 (1903 TO 1906 QUOTAS).

SENIOR CADETS.

Military District.	Total Registrations in Training Areas.	Total Medically Examined.	Number Medically Fit.	Percentage Medically Examined who are Fit.	Number Unfit and Temporarily Unfit.	Percentage Medically Examined who are Unfit and Temporarily Unfit.	Total Exemptions Granted in Training Areas.	Total Number Actually in Training.
1st ..	17,429	15,815	14,382	90.94	1,433	9.06	4,058	13,221
2nd ..	44,722	42,510	39,334	92.53	3,176	7.47	6,644	37,230
3rd ..	32,046	31,817	29,145	91.6	2,672	8.40	2,676	28,811
4th ..	12,004	10,839	9,952	91.82	887	8.18	1,984	9,933
5th ..	6,898	6,873	6,260	91.1	613	8.92	613	6,186
6th ..	4,720	4,053	3,609	89.05	444	10.95	1,086	3,569
Total ..	117,819	111,907	102,682	91.76	9,225	8.24	17,061	98,950

UNIVERSAL TRAINING.—MEDICAL EXAMINATIONS TO THE 31st DECEMBER, 1920 (1907 AND 1908 QUOTAS).

JUNIOR CADETS.

Military District.	Total Number Medically Examined.	Number Medically Fit.	Percentage Medically Examined who are Fit.	Number Unfit and Temporarily Unfit.	Percentage Medically Examined who are Unfit and Temporarily Unfit.
1st	7,063	6,827	96.65	236	3.35
2nd	21,471	21,128	98.40	343	1.60
3rd	15,966	15,699	98.33	267	1.67
4th	5,780	5,681	98.29	99	1.71
5th	3,805	3,741	98.31	64	1.69
6th	1,918	1,888	98.43	30	1.57
Total ..	56,003	54,964	98.14	1,039	1.86

§ 2. Naval Defence.

1. **Naval Defence under the States.**—Information regarding naval defence systems prior to 1901 will be found in Official Year Book No. 12, p. 1011, but considerations of space preclude its insertion in the present volume.

2. **Development of Commonwealth System from 1901.**—Australian defence, in both its branches (naval and military), passed to the Commonwealth in 1901. Prior to 1905 a naval officer commanding administered the naval forces under the Minister. When the Council of Defence was established in that year, the Naval Board was constituted and took over the administration of the Commonwealth naval forces, thereby ensuring continuity of policy and administration.

3. **The Present System.**—(i) *Australian Naval Policy.* An outline of the development of Australian naval policy will be found in Official Year Book No. 3, pp. 1060–1061, and in No. 12, p. 1012.

(ii) *The Building of the Australian Fleet.* Skilled artisans were despatched from Australia to gain practical experience in naval shipbuilding, construction proceeding both in Britain and Australia. Sailors of all ratings were also trained for the Commonwealth service. The first instalment of the Australian fleet unit consisted of two torpedo boat destroyers, of British construction, commissioned in September, 1910, and named *Parramatta* and *Yarra*. A third destroyer, the *Warrego*, was shipped to Sydney in parts, and was re-erected at the Commonwealth dockyard, Cockatoo Island, Sydney, and commissioned on 1st June, 1912. A description of these and the other vessels of the fleet will be found in Official Year Book No. 6, pp. 1066–7.

The battle cruiser *Australia* was commissioned in June, 1913, and arrived in Australian waters in the following September. Two light cruisers, the *Melbourne* and *Sydney*, arrived in Australian waters in 1913, and two submarines in 1914. A third cruiser, the *Brisbane*, and three more destroyers, the *Swan*, *Huon* and *Torrens*, were built at the Commonwealth Naval Dockyard, Sydney. Another cruiser, the *Adelaide*, is under construction at the Commonwealth Naval Dockyard.

(iii) *Modifications Adopted and Proposed.* Certain modifications have been made in the original scheme. These have been prepared in tabular form, and are as follows :—

FLEET UNIT.—ORIGINAL ESTIMATED COST.

(Imperial Defence Conference, 1909.)

1 Battle cruiser	£2,000,000
3 Protected cruisers, £350,000 each	1,050,000
6 Destroyers (including 3 ordered before the Conference), £80,000 each	480,000
3 Submarines, "C" class, £55,000 each	165,000
Total	£3,695,000

AMENDED ESTIMATED COST.

(Consequent on Alteration of Type of Vessels on Admiralty Recommendation.)

1 Battle cruiser	£2,000,000
3 Protected cruisers, £450,000 each	1,350,000
6 Destroyers, £80,000 each	480,000
2 Submarines, "E" class, £105,000 each	210,000
Total	£4,040,000

LATER ESTIMATED COST OF FLEET UNIT, TOGETHER WITH COST OF VESSELS NOT INCLUDED IN ORIGINAL FLEET UNIT.

1 Battle cruiser		£1,705,000
(a) 3 Protected cruisers		1,400,000
(a) 6 Destroyers		853,000
2 Submarines		233,500
Auxiliaries—		
1 Submarine depot ship	£160,000	
1 Oil tank vessel	120,000	
4 Oil fuel storage vessels (building in Australia)	75,766	
4 Hulks	25,000	
		380,766
Total		£4,372,266
The following additional amount has been approved for new construction outside the original fleet unit and for increase in cost over estimate		2,135,952
Total		£6,508,218

(a) Extra cost of building certain of these vessels in Australia is responsible for increase.

(iv) *Expenditure on Fleet Construction for the Royal Australian Navy.* The following is a statement of expenditure out of sums appropriated for construction of fleet :—

EXPENDITURE ON FLEET CONSTRUCTION, 1909 TO 1921.

Year.	Appropriation.	Expenditure.
		£
1908–9	Act No. 19 of 1908	24,855
1909–10	Act No. 19 of 1908	223,959
1909–10	Division No. 11A, New Works, etc.	60,000
1910–11	Act No. 18 of 1910	285,863
1910–11	Division No. 12, New Works, etc.	850,000
1911–12	Act No. 18 of 1910	1,108,494
1912–13	Act No. 18 of 1910	524,037
1912–13	Division No. 10, New Works, etc.	
1913–14	Division No. 12, New Works, etc.	637,606
1914–15	Division No. 13, New Works, etc.	467,296
1915–16	Division No. 13, New Works, etc.	396,073
1916–17	Division No. 17, New Works, etc.	374,249
1917–18	Act No. 30 of 1917, New Works, etc.	355,397
1918–19	War Loan Act No. 23 of 1917	533,694
1919–20	War Loan Act No. 13 of 1918	366,695
1920–21	Division No. 7, New Works, etc.	300,000(a)
	Total	6,508,218

(a) Estimated.

(v) *Visit and Report by Admiral Sir Reginald Henderson.* At the invitation of the Government, Admiral Sir Reginald Henderson visited Australia to advise upon naval matters generally. A summary of his report will be found in Official Year Book No. 6, pp. 1067–8.

(vi) *The Compact with the Imperial Government.* The Australian Government is building its navy according to the terms of an official paper (cd. 5746–2) submitted to the Imperial Conference held in London in 1911, and on the plan formulated by Admiral Henderson (after an inspection of Australia's capitals and other ports and coast line, in

1911). There is no formal contract or agreement between the British and the Commonwealth Governments. The last actual agreement was that of 1903, already described in Year Book No. 12 (see p. 1012). Before the expiration of the time for which this agreement was made the Commonwealth began the work of fleet construction. Up to the year 1911-12, £200,000 was annually paid. For 1912-13, £175,000 was set down in the estimates, and £166,600 paid. The Commonwealth Parliament amended the *Naval Agreement Act 1903*, by No. 10 of 1912 (*Naval Agreement Act 1912*), providing that the Governor-General may, from time to time, arrange with the Imperial Government for the reduction of the Australian squadron, and for reduction in the naval subsidy. No amount under "Naval Agreement Act" will be found in the estimates for 1913-14 and later years. Some departures are made from Admiral Henderson's recommendations, but generally they have been adopted. The Commonwealth is now fulfilling the larger obligation of fleet-building, and is maintaining its own vessels. The establishment of naval bases and sub-bases required for the fleet unit is also proceeding.

As already stated, the present situation is not governed by a formal contract or agreement. The Commonwealth Government has, by regulations and orders, given effect to some, and intends giving effect to others, of the items submitted to the Conference.

(vii) *Naval College.* A naval college has been established at Captain's Point, Jervis Bay, consisting of numerous buildings necessary for the training of naval officers. The course is similar to that carried out in naval colleges in England. In December, 1920, there were 96 cadet midshipmen under training. There were also 17 officers, including naval instructors, and 68 members of the ship's company in residence at the college. A boy whose thirteenth birthday falls in the year in which the entrance examination is held, is eligible to compete provided he is the son of natural-born or naturalised British subjects. From amongst those qualified the Selection Committee chooses the number required. The Commonwealth Government bears the whole expense of uniforms, victualling, travelling, as well as that of the educational course.

(viii) *Training Ships.* H.M.A.S. *Tingira*, moored in Rose Bay, Sydney, was commissioned in April, 1912, to train boys for the *personnel* of the Royal Australian Navy. The age of entry is fourteen and a half to sixteen years. Only boys of very good character and physique are accepted, after a strict medical examination. The boys must engage to serve until they reach the age of 25. The training lasts about one year, and they are then drafted to a sea-going warship of the Australian fleet. Recruiting has been satisfactory, there being 138 boys under training on 31st December, 1920.

(ix) *The Naval Station of the Commonwealth of Australia.* The following are the limits of the Naval Station which, since 1st June, 1919, have been controlled by the Commonwealth Government, acting through the Naval Board:—North: From a point in 95 degrees East longitude and 13 degrees South latitude along that parallel to the Eastward to the meridian of 120 degrees East longitude; thence along that meridian to the Northward to 11 degrees South latitude; thence to an Easterly direction to the Southern termination of the Eastern boundary of Dutch New Guinea in about 141 degrees East longitude; thence along the meridian of the boundary to the Northward to the Equator; thence along the equator to the Eastward to 170 degrees East longitude. East: From a point on the Equator on the meridian of 170 degrees East longitude along that meridian to the Southward to 32 degrees South latitude; thence along that parallel to the Westward to the meridian of 160 degrees East longitude; thence along that meridian to the South Pole. South: The South Pole. West: From the South Pole by the meridian of 80 degrees East longitude to the Northward of 30 degrees South latitude; thence along that parallel to the Eastward to the meridian of 95 degrees East longitude; thence along that meridian to the Northward to 13 degrees South latitude.

(x) *Visit and Report of Lord Jellicoe.* At the invitation of the Government, Admiral of the Fleet Lord Jellicoe visited Australia in May, 1919, to advise the Dominion Authorities whether, in the light of the experience of the war, the scheme of naval organization which had been adopted or may have been in contemplation, required consideration, either from the point of view of the efficiency of that organization for meeting local needs, or from that of securing the greatest possible

homogeneity and co-operation between all the Naval Forces of the Empire; and, should the Dominion Authorities desire to consider how far it is possible for the *Dominions to take a more effective share in the Naval Defence of the Empire, to give* acceptance from the Naval point of view in drawing up a scheme for consideration.

The subjects, on which advice was requested, were:—The Naval strategical problem affecting Australian waters and the Pacific; future composition of the Australian Navy; Naval Bases and requirements in the Pacific and East Indian Waters; general organization and administraion of the Naval Forces.

4. **Vessels and Personnel of the Australian Navy.**—The following table shows the vessels of the Royal Australian Navy:—

LIST OF SHIPS OF THE ROYAL AUSTRALIAN NAVY, MAY, 1921.

Vessel.	Description.	Displacement.	Power.
		Tons.	H.P.
Adelaide	Light Cruiser	5,500	25,000
Anzac	Flotilla Leader	1,660	36,000
Australia	Battle Cruiser	18,800	44,000
Brisbane	Light Cruiser	5,400	25,000
Cerberus	Turret Ship	3,480	1,660
Countess of Hopetoun	First Class Torpedo Boat	93	1,100
Encounter	Light Cruiser	5,880	12,500
Franklin	Yacht	370	350
Geranium	Sloop	1,250	2,000
Huon	T.B. Destroyer	700	11,300
Mallow	Sloop	1,200	1,800
Marguerite	"	1,250	2,200
Melbourne	Light Cruiser	5,400	25,000
Parramatta	T.B. Destroyer	700	9,000
Penguin	Depot Ship	1,130	..
Pioneer	Light Cruiser	2,200	7,000
Platypus	Submarine Depot Ship	3,460	2,611
Protector	Gunboat	920	1,600
Stalwart	T.B. Destroyer	1,075	27,000
Success	"	1,075	27,000
Swan	"	700	10,000
Swordsman	"	1,075	27,000
Sydney	Light Cruiser	5,400	25,000
Tasmania	T.B. Destroyer	1,075	27,000
Tattoo	"	1,075	27,000
Tingira	Boys' Training Ship	1,800	..
Torrens	T.B. Destroyer	700	10,000
Una	Sloop	1,438	1,350
Warrego	T.B. Destroyer	700	9,000
Yarra	"	700	9,000
FLEET AUXILIARIES—			
Biloela	Fleet Collier	5,700	2,300
Kurumba	Fleet Oiler	3,970	..
SUBMARINES, "J" CLASS—			
1, 2, 3, 4, 5, 7		1,900 (submerged)	1,400
		1,170 (on surface)	3,600

Practically the whole of this Fleet was assembled in Port Phillip on 28th May, 1920, and was reviewed there by H.R.H. the Prince of Wales.

Besides the Sea-going Forces, there is a R.A.N. Reserve, which is composed of Citizen Naval Trainees. The *personnel* of the Sea-going Forces, which was originally largely composed of Imperial officers and men, is now mainly Australian in character and will become more so, as time goes on. Strength of Naval Forces at latest available date was :—

STRENGTH OF NAVAL FORCES (PERMANENT AND RESERVES), 15th SEPTEMBER, 1921.

Description of Force.	Numbers Borne.		
	In Training.	Officers.	Men.
Royal Australian Navy (Seagoing)	..	406	4,450
Cadet Midshipmen undergoing training at R.A.N. College ..	85	..	..
Boys undergoing training on H.M.A.S. *Tingira*	125	..	..
Royal Australian Naval Reserve (Seagoing)	..	44	..
Royal Australian Naval Brigade	..	65	3,318

§ 3. Expenditure on Defence.

1. **Expenditure, 1916–17 to 1921–22.**—The following table gives the expenditure on Defence from 1916–17 to 1920–21, and the estimate for 1921–22 :—

EXPENDITURE ON DEFENCE, 1916–17 TO 1921–22.

	1916–17.	1917–18.	1918–19.	1919–20.	1920–21.	1921–22. (Estimate.)
	£	£	£	£	£	£
Naval Forces	1,442,405	1,466,164	1,546,586	1,611,325	2,429,050	2,340,438
Military Forces	1,848,593	1,088,351	1,196,028	946,409	1,340,719	1,693,000
Air Services	12,156	14,660	4,151	26,813	58,155	(*d*)100,000
Naval Works	594,134	44,377	8,120	7,663	25,484	199,000
Construction of Fleet ..	374,249	(*a*)	(*b*)	(*b*)	301,284	800,000
Military—Additions, New Works, etc.	164,839	45,684	31,430	9,004	153,553	583,261
Military Stores, etc.	183,091	87,894	57,467	80,004	539,702	550,990
Air Services—Works	..	..	..	19,991	(*d*)77,040	(*d*)400,000
Rent, Repairs and Maintenance	84,283	73,678	79,221	78,461	108,728	136,149
Sites for Defence purposes ..	129,609	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)
Proportion Public Works Staff, Salaries and Contingencies ..	19,200	17,715	31,880	28,962	26,723	30,500
Supervision of Public Works by State Officers	2,831	1,188	1,680	1,801	2,094	2,200
Interest on Transferred Properties	129,570	129,548	136,699	130,470	122,325	123,410
Audit	12,389	22,565	10,118	16,104	17,298	14,800
Pensions and Retiring Allowances	1,089	1,277	1,391	1,202	2,162	2,271
Miscellaneous	2,801	12,507	35,530	50,572	58,753	61,425
	4,501,439	3,005,608	3,140,251	3,008,781	5,258,070	6,537,444
Buildings, Works and Sites provided from Loan Fund (excluding construction of Fleet)	..	(*c*) 717,088	414,430	566,853	401,286	542,000
War Expenditure	61,541,566	66,958,360	83,447,990	70,137,318	57,434,734	42,399,253
Total Expenditure on Defence	66,043,005	70,681,056	87,002,671	73,712,952	63,094,090	49,478,697

(*a*) Provided from Loan Funds for Works. The expenditure in respect of Construction of the Fleet in 1917–18, 1918–19, and 1919–20, was £355,397, £533,694, and £366,696 respectively. (*b*) Provided from War Loan Fund. See previous note. (*c*) Includes Construction of Fleet £355,397. (*d*) Includes Civil Aviation.

2. *Expenditure for Defence Purposes, 1901–2 to 1920–21.*—In the following table the Defence expenditure for the whole Commonwealth period 1901–2 to 1920–21, and the estimate for the year 1921–22 are given :—

ANNUAL DEFENCE EXPENDITURE.

Year.	Naval. Under Ordinary Votes and Appropriations.	Naval. Works, Arms, Equipment, etc. (provided under Estimates for New Works and Buildings).	Naval. Total Naval. (a)	Military. Under Ordinary Votes and Appropriations.	Military. Works, Arms, Equipment, etc. (provided under Estimates for New Works and Buildings).	Military. Total Military. (a) (b)	Total Defence Expenditure. (a) (b)
	£	£	£	£	£	£	£
1901–2 ..	178,819	..	178,819	777,620	2,640	780,260	959,079
1902–3 ..	149,701	..	149,701	595,115	5,537	600,652	750,353
1903–4 ..	240,005	86	240,091	502,517	113,156	615,673	855,764
1904–5 ..	200,394	5,394	205,788	533,945	194,865	728,810	934,598
1905–6 ..	250,273	1,743	252,016	548,439	169,890	718,329	970,345
1906–7 ..	255,120	652	255,772	585,516	194,507	780,023	1,035,795
1907–8 ..	259,247	250,958	510,205	634,579	189,960	824,539	1,334,744
1908–9 ..	263,207	4,055	267,262	686,865	96,965	783,330	1,050,592
1909–10 ..	269,051	60,688	329,739	928,393	277,273	1,205,666	1,535,405
1910–11 ..	303,493	1,161,541	1,465,034	1,092,305	448,687	1,540,992	3,006,026
1911–12 ..	461,546	1,172,920	1,634,466	1,667,103	780,279	2,447,382	4,081,848
1912–13 ..	806,881	853,735	1,660,616	1,802,734	879,883	2,685,689	4,346,305
1913–14 ..	1,006,424	980,677	1,987,101	1,941,265	820,902	2,765,199	4,752,300
1914–15 ..	1,526,351	854,613	6,821,091	1,471,136	584,602	12,733,688	19,554,779
1915–16 ..	1,550,012	972,733	8,470,036	1,501,840	724,043	37,491,041	45,961,077
1916–17 ..	1,510,542	1,040,788	6,641,249	1,532,619	405,334	59,401,756	66,043,005
1917–18 ..	1,544,590	44,377	3,767,226	1,268,403	133,578	66,913,830	70,681,056
1918–19 ..	1,650,375	8,120	9,435,658	1,386,706	88,897	77,567,013	87,002,671
1919–20 ..	1,728,327	7,663	5,645,374	1,136,979	89,008	68,067,578	73,712,952
1920–21 ..	2,549,807	326,768	3,658,462	1,553,045	693,255	59,435,628	63,094,090
1921–22 ..	2,465,158	499,000	3,453,158	1,939,935	134,251	46,025,539	49,478,697

(a) During the war years and subsequently, war expenditure and loan expenditure on works included in total. (b) Includes Air Force expenditure, as follows :—£3,072 in 1912–13 ; £3,012 in 1913–14 ; £6,742 in 1914–15 ; £10,503 in 1915–16 ; £12,156 in 1916–17 ; £14,660 in 1917–18 ; £121,294 (of which £117,143 was war expenditure) in 1918–19 ; £46,804 in 1919–20 (Air Force war expenditure in this year shewed a credit of £81,601) ; £135,195 in 1920–21 ; and £500,000 (estimate) in 1921–22. All these amounts were under ordinary Votes and Appropriations, except war expenditure, and the following under New Works and Buildings :—£19,991 in 1919–20 ; £77,040 in 1920–21 ; £400,000 (estimate) in 1921–22. In 1920–21 and 1921–22, Civil Aviation is included.

NOTE.—In the year 1900–1 the approximate Defence Expenditure made by the States was :—

Ordinary Services	£800,000
Works, Arms, Equipment, etc.	200,000
Total	£1,000,000

3. **Special War Expenditure.**—The special war expenditure for the years 1914–15 to 1920–21 and the estimate for 1921–22 will be found on page 930.

4. **Expenditure in Various Countries.**—The total expenditure on defence and the expenditure per inhabitant in various countries according to estimates made immediately prior to the late war, were as follows :—

ESTIMATED PRE-WAR EXPENDITURE ON DEFENCE.—VARIOUS COUNTRIES.

Country.	Year.	Army.	Navy.	Total.	Per Inhabitant.
		£	£	£	s. d.
Great Britain	1913–14	28,220,000	46,309,000	74,529,000	32 3
Germany	1913–14	73,833,000	24,012,000	97,845,000	30 2
France	1913	38,286,000	18,452,000	56,738,000	28 7
Italy	1913–14	14,546,000	9,068,000	23,614,000	13 7
Austria-Hungary ..	1913	16,500,000	3,100,000	19,600,000	7 8
Switzerland	1913	1,772,000	..	1,772,000	9 1
Russia	1913	64,136,000	22,817,000	86,953,000	10 5
Spain	1913	6,391,000	2,827,000	9,218,000	9 3
Portugal	1913–14	2,190,000	851,000	3,041,000	10 3
Norway	1913–14	867,000	337,000	1,204,000	9 11
Sweden	1913	3,063,000	1,447,000	4,510,000	16 0
Denmark	1913–14	1,081,000	544,000	1,625,000	11 5
Holland	1913	2,780,000	1,678,000	4,458,000	14 6
Belgium	1913	3,260,000	..	3,260,000	8 7
United States	1913–14	35,073,000	29,464,000	64,537,000	14 0
Canada	1912–13	1,872,000	..	1,872,000	5 2
Japan(a)	1913–14	7,815,000	4,224,000	12,039,000	3 6
Australia	1913–14	3,291,000	2,456,000	5,747,000	23 7

(a) Excluding extraordinary expenditure.

§ 4. Industrial Establishments and Remount Depot.

1. Commonwealth Factories.—There are seven factories established under the authority of the Defence Act in connexion with the Defence Department. The Commonwealth Harness, Saddlery, and Leather Accoutrements Factory at Clifton Hill, Victoria, was opened in September, 1911. On 30th June, 1920, there were 44 persons employed, including 8 females. A large quantity of harness and saddlery, leather and canvas equipment has been turned out for the Defence and other Commonwealth and State Departments. At the Cordite Factory at Maribyrnong, Victoria, cordite is manufactured for the cartridges required for military purposes. On 30th June, 1920, the employees numbered 152. The Clothing Factory at South Melbourne, Victoria, commenced operations on 3rd January, 1912. Since 1st July, 1912, a satisfactory output has been maintained. The number of employees on 30th June, 1920, was 254, of whom 202 were females. The establishment is able to supply the whole of the uniform clothing required for the Defence Forces and the Postmaster-General's Department, and much of that required by State Departments and local governing bodies. The Small Arms Factory at Lithgow, New South Wales, was opened on 1st June, 1912. The first instalment of Australian arms was delivered in May, 1913. Employees numbered 789 on 30th June, 1920. The Commonwealth Woollen Cloth Factory was established at Geelong, Victoria, for the supply of uniform materials and woollen fabrics, and commenced operations in the latter part of 1915; 316 persons, including 152 females, were employed on the 30th June, 1920.

The Acetate of Lime Factory at Bulimba, Brisbane, which manufactures acetate of lime (a raw material used in the production of acetone), commenced operations in September, 1918. On 30th June, 1920, there were 49 persons employed. This factory is run in conjunction with the Cordite Factory.

A seventh Commonwealth Factory was established at the Military Hospital, Caulfield, Victoria, for the manufacture of artificial limbs for returned soldiers. This factory has since been transferred to South Melbourne, Victoria, and branch factories established at Sydney, New South Wales; Windsor, Brisbane, Queensland; Keswick, South Australia; and Fremantle, Western Australia. The total number employed throughout Australia in these artificial limb factories was 106 on 30th June, 1920. The factories were taken over by the Repatriation Department from the Defence Department on 1st November, 1920.

2. Expenditure.—The expenditure up to 30th June, 1920, on land, buildings, machinery and plant, factory fittings and furniture in connexion with the factories now in operation was approximately as follows:—

Small Arms Factory	£207,598
Cordite Factory	172,565
Clothing Factory	21,009
Harness Factory	13,205
Woollen Cloth Factory	143,988
Acetate of Lime Factory	105,942

3. Remount Depot.—The Act of 1910 authorised the establishment and maintenance of horse depots, farms, and stations for the breeding of horses. Up to the present nearly 2,000 remounts have been purchased. They are primarily to supply the requirements of the Field Artillery Batteries, but are also available for the use of other mounted units. Remount depots have been purchased or are leased in each of the military districts, and veterinary hospitals have also been established in the larger States. In Victoria and South Australia stables have been built. A remount section of the Army Service Corps

has been formed for the purpose of breaking, training and looking after remounts generally. These sections were so organised as to be capable of rapid expansion in case of emergency, and when war was declared in 1914 little difficulty was experienced by the Remount Service in coping with the enormous task of obtaining and training horses for the mounted units of the A.I.F. and in providing for the shipment of horses to Egypt and India as required.

§ 5. Australian Contingents.

1. **General.**—In previous issues of the Year Book an account was given of the composition, etc., of the Australian contingents despatched for service in the New Zealand and Sudan Campaigns, in South Africa, China, and the Great War of 1914–18 (see Official Year Book No. 12, pp. 1019 *et seq.*). Owing to limits of space, however, this information has not been repeated in the present issue.

Up to the 31st March, 1921, the troops which had been despatched from Australia for service in the various theatres of the Great War numbered 329,883.

(i) *Casualties in Australian Imperial Force.*—The number of casualties announced by the Defence Department to 31st March, 1921, was as follows :—

CASUALTIES IN AUSTRALIAN IMPERIAL FORCE TO 31st MARCH, 1921.

—	All Ranks.
Deaths from wounds or disease	(a)59,330
Casualties from wounds or gas (gross total)	166,819
Sick (gross total)	87,957
Casualties not specified	(a)218
Total	314,324

(a) These figures represent actual net totals after all corrections consequent upon erroneous and later advice, etc., have been taken into account. The wounded and sick represent totals reported by cable and are in excess of the actual number of men affected, because many were admitted to hospital more than once.

(ii) *The Expeditionary Force in the Pacific.* The operations against the German colonial troops resulted, within two months, in the capture of the whole of the enemy's possessions in the Pacific. The German Pacific wireless chain was broken. Samoa was occupied by a force from New Zealand. The German Pacific Protectorate (*Das Deutsches Südsee Schutzgebiet*) was terminated. It comprised German New Guinea, the Bismarck Archipelago, the two northernmost islands of the Solomon group (Bougainville and Buka), the choicest islands of the Samoan group (now occupied by New Zealand), the Marshall Islands (including Nauru), the Carolines, Pelews and Ladrones (except Guam, which belongs to America). Of these groups, the Bismarck Archipelago is the most important. It includes New Britain, New Ireland, New Hanover, and several small groups and islands, of which the Admiralty, Hermit, Ninigo, Witu and St. Matthias groups are the principal. All former German islands south of the Equator (except the Samoan group) are now occupied and administered by the Commonwealth. Those north of the Equator are under Japanese administration.

(iii) *The Australian Navy in the War.* In Year Book No. 12, pp. 1025 *et seq.*, an account was given of the part played by the Australian Navy in the War, but owing to limitations of space it has not been possible to reproduce this matter in the present issue.

(iv) *Special War Expenditure, 1914–21.* According to a return supplied by the Defence Department the special expenditure for war purposes during each of the years 1914 to 1921 was as set out hereunder :—(See also Table on p. 926.)

SPECIAL WAR EXPENDITURE, 1914–15 TO 1921–22.

	1914–15.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	1920–21.	1921–22. Estimate.
	£	£	£	£	£	£	£	£
Special expenditure on Expeditionary and Australian Forces—								
Naval	3,527,904	5,093,530	2,737,890	..	5,443,599	2,451,078	698,052	200,000
Military	9,474,537	31,938,864	46,408,490	50,957,776	48,148,442	18,022,258	1,019,110	200,000
Interest due to Government of United Kingdom for maintenance of Australian troops at the Front	..	..	..	..	3,430,000	1,816,000	1,743,264	(a)
Interest on loans from Government of United Kingdom for War purposes	36,480	843,893	2,082,258	2,477,288	2,377,600	2,377,656	2,290,460	(a)
Sinking Fund on loans from Government of United Kingdom	..	..	477,743	245,410	245,410	245,410	490,820	(a)
Interest on Australia's War Indebtedness to Government of United Kingdom	..	..	..	..	..	..	..	4,535,255a
Payment in reduction of principal of Australia's War indebtedness to the Government of the United Kingdom ..	..	..	..	..	..	..	..	1,013,560a
Interest on Commonwealth War Loans	78,656	1,014,821	2,738,673	4,574,817	7,709,771	10,268,246	11,270,983	12,363,500
Interest on War Gratuity Bonds and Treasury Bills for War Gratuity purposes ..	..	..	..	..	..	224	1,140,361	1,183,800
Sinking Funds on loans for War purposes	..	200,777	689,384	515,781	955,303	1,067,402	2,678,000	1,986,440
Amount transferred to Trust Fund, Australian Soldiers' Repatriation Account ..	..	250,000	..	200,000	1,300,000	5,170,737	3,384,845	2,056,000
War Pensions (including Administrative expenses) ..	..	129,273	1,149,242	2,772,077	4,827,968	6,032,270	7,389,739	6,650,000
Advances to States and Territories for purpose of settling returned soldiers on the land	..	..	20,000	20,000	1,047,963	10,155,675	15,182,878	7,000,000
Expenditure under Act 1918 War Service Homes ..	..	..	..	..	5,000	4,718,158	6,594,164	4,000,000
Trading Vessels	153,973	318,285	686,700	999,197	272,608	143,274	527	2,000
Miscellaneous	1,839,776	1,412,003	4,551,186	4,196,014	7,684,836	7,668,930	3,551,531	1,208,698
	15,111,335	41,201,446	61,541,566	66,958,360	83,447,990	70,137,318	57,434,734	42,399,253

(a) An agreement has been entered into between Australia and the Government of the United Kingdom whereby war debts due to the latter by Australia have been funded and the amount due for maintenance of Australian troops at the front and loans made to Australia for war purposes are included in this agreement. Provision is also made for half-yearly payments in reduction of the principal of Australia's War Indebtedness to the Government of the United Kingdom.

§ 6. War Gratuity.

In accordance with the War Gratuity Acts 1920 (assented to 30th April, 1920, and 29th May, 1920), a bonus, payable as an overseas war service gratuity, is authorized for sailors and soldiers who served in the Great War. The gratuity is in the nature of a free gift from the Commonwealth, in recognition of honorable services during the War, and is not claimable or recoverable as a matter of right. For members of the Naval Forces who served in a sea-going ship ; members of the Naval and Military Expeditionary Force to New Guinea ; members of the Australian Imperial Force who embarked from Australia on or before 10th November, 1918 (day preceding the Armistice) ; and Imperial reservists who served, the rate of gratuity is 1s. 6d. per day for the qualifying period. For members of the Naval Forces who did not serve in a sea-going ship ; and members of the Military Forces who did not embark for overseas service the rate is 1s. per day. The qualifying period of service is that between the outbreak of War (4th August, 1914) and the Armistice (11th November, 1918). The period for which payment is to be made to individuals commences—for sailors, from the date of taking up duty on a sea-going ship ; for soldiers

who served overseas, from the date of embarkation (or the first of them, if more than one); the terminating date in all cases being the date of Declaration of Peace (28th June, 1919). For sailors not having service in a sea-going ship, and for soldiers who did not embark, or who embarked after 10th November, 1918, payment will be made from date of taking up duty to date of discharge or Declaration of Peace. Deductions may be made for misconduct on service, and serious crime, military or civil, involves disqualification.

The gratuity is ordinarily payable in Treasury bonds, maturing not later than 31st May, 1924, and bearing interest at 5½ per cent. In necessitons cases, payment will be made in cash, if so desired by the person entitled. The first gratuities were made available about the beginning of June, 1920. By the 2nd July, 1921, the sum of £5,157,110 was paid in cash, and bonds to the value of £20,585,746 were issued. Upwards of 360,000 payments will be made, the total amount being estimated at £30,000,000.

§ 7. Special Defence Legislation.

1. **War Precautions Acts.**—On the outbreak of war in Europe, the Federal Parliament passed an *Act to enable the Governor-General to make regulations and orders for the safety of the Commonwealth during the state of war.* The provisions of this Act, which was assented to on 29th October, 1914, will be found in Official Year Book No. 8, page 1092. Particulars of the *Enemy Contracts Annulment Act* will be found in the same issue of the Year Book, page 1095.

The War Precautions Act 1918 provided that the War Precautions Act 1914–16 should remain in force only until 31st July, 1919, or for a period of three months after the issue of a proclamation that the state of war has ceased, whichever period is the longer. All regulations made under the Act will lapse with it.

Under the powers conferred by the above Acts, the *War Precautions Regulations* were made. They provided for the appointment of competent naval or military authorities to exercise certain powers under the regulations, and other matters. The principal provisions of the regulations are given in Official Year Book No. 11, pp. 1035–1043.

The War Precautions Act Repeal Act of 1920 repealed the Act 1914–18, but certain of the regulations are still in force.

§ 8. Persons of Enemy Birthplace.

The following table shews the estimated number of males of enemy birthplace (natives of Germany, Austria-Hungary, Turkey, and Bulgaria, whether naturalised or otherwise, but exclusive of persons of British parentage), in each State at the 31st July, 1915, and the estimated number naturalised. While the States and military districts are not quite conterminous, they approximate sufficiently to admit of the comparison :—

MALES OF ENEMY BIRTHPLACE IN THE COMMONWEALTH AT 31st JULY, 1915.

State and Military District.		Male Enemy Subjects.(a)	Number Naturalised.(a)	Number not Naturalised.(a)
Queensland	1st Military District ..	8,080	6,640	1,440
New South Wales	2nd ,, ,, ..	6,460	4,330	2,130
Victoria	3rd ,, ,, ..	4,920	3,300	1,620
South Australia	4th ,, ,, ..	3,270	2,630	640
Western Australia	5th ,, ,, ..	3,190	1,280	1,910
Tasmania	6th ,, ,, ..	380	320	60
Total		26,300	18,500	7,800

(a) These figures are based on Census returns, and can only be considered as a rough approximation.

The number of females of enemy birthplace in the Commonwealth at 31st July, 1915, is estimated at about 12,000.

§ 9. Repatriation.

1. **General.**—In common with others of the late warring countries of the world, Australia has had to face the problem of the returned soldier—to find employment for the fit, to re-establish the disabled, to provide for the dependants of those who have died or of those who are no longer able to support themselves, and to supply medical and surgical treatment for disabilities due to or aggravated by war services.

During the early stages of the war this work was carried out mainly by voluntary effort, assisted by Government funds, and supplemented by private contributions. Disconnected and divergent schemes were extemporised to meet the pressing needs of soldiers and their families, with the result that there was overlapping in some directions and insufficiency in others. The Commonwealth Parliament therefore decided that Repatriation should become a national undertaking, and that a comprehensive scheme should be designed to meet the various claims in connection therewith. On 8th April, 1918, the Department of Repatriation, charged with this responsibility, was established, the first Minister being Senator the Hon. E. D. Millen.

2. **Organisation of the Department.**—The organisation of the Department provides for a Central Administrative Commission of three paid members, termed the Repatriation Commission, one of whom is chairman, and each of whom is a returned soldier. Its duties are to prescribe by regulation the nature and extent of the assistance that may be granted, and to hear appeals from decisions of the State Boards. Under the Amending Act of 19th May, 1920, the Repatriation Commission also takes over the administration of war pensions. Repatriation headquarters are in Melbourne. District branches have been established in the capital city of each State, and associated with these branches are State Boards, comprising three paid members, one of whom is chairman, and providing for the representation of returned soldiers. The permanent official at the head of each State organization is termed Deputy Commissioner. A network of local committees is connected with the district branches. The local committees are voluntary organisations possessing dual functions. They act as sub-agents under the control and direction of the Department so far as the disbursement of assistance specifically provided by the Department is concerned, and they are vested with discretionary powers in regard to the disbursement of supplementary assistance, organised and raised locally. Local Committees work within clearly defined territorial boundaries. Under this scheme every square mile of the whole continent of Australia is brought directly under the operation of the departmental policy.

3. **Policy of the Department.**—The policy of the Department is based upon four main principles :—(*a*) To secure the re-establishment of returned soldiers in the industrial life of the community to the fullest extent that circumstances permit; (*b*) to sustain these soldiers until an opportunity for such re-establishment is assured; (*c*) to provide for the care of the dependents of soldiers who have died on active service, as well as the dependents of soldiers who, on account of injuries sustained, are unable to provide for those formerly dependent upon them; and (*d*) to provide medical treatment after discharge for returned nurses, sailors and soldiers who are suffering from disabilities caused or aggravated by war service.

To give effect to these principles the Department undertakes :—

(1) To provide suitable employment for those who are able to follow their previous occupation or one similar to it, and to pay sustenance until such opportunities are presented;

(2) To restore to the fullest degree of efficiency possible, by means of vocational training, those who on account of war service are unable to follow their pre-war occupations, and during the period of such training to assure trainees adequate sustenance;

(3) To maintain by pensions or in hostels totally and permanently incapacitated soldiers and their dependents, and soldiers' widows with children.

(4) To supply gratis all necessary treatment, surgical aids, and medicaments; all hospital fees, and transport expenses thereto and therefrom, with allowances for certain classes for the period of treatment (where hospital treatment is not feasible the same may be given in the home or in such place as may be approved).

4. Activities of the Department.—(*a*) *Assistance and Employment.* The activities of the Department are classified under five sections—employment, vocational training, land settlement, housing, and assistance. Under assistance, a wide variety of benefits, including the provision of surgical aids, medical treatment, establishment in small businesses, furniture loans and grants, educational grants and equipment with tools of trade, are provided. In co-operation with the State Governments a land settlement scheme, whereby the Federal Government lends the States the necessary money to acquire the estimated number of holdings required, and to construct railways or other works necessary to their successful occupation, has been devised. Under this scheme the Commonwealth Government will also make available working capital up to £625 per settler. This will afford every soldier possessing the natural aptitude and fitness an opportunity of ultimately owning his own farm. With the exception of South Australia all the States have agreed to extend the benefits of the Land Settlement Scheme to munition and war workers to whom the Commonwealth advance of £625 will be available.

Under the provisions of the housing scheme, which is administered by the War Service Homes Commissioner, a returned nurse or soldier, a munition or war worker, a soldier's widow, or his dependents are entitled to a maximum advance of £800 for the purpose of acquiring a dwelling. According to the material of the house, the period of repayment will vary. Principal and interest are repayable as rent at the rate of 5 per cent. per annum.

(*b*) *After-war Treatment of War Service Disabilities.* For disabilities solely due to or aggravated by war service, discharged nurses, sailors and soldiers are entitled to free medical treatment, surgical aids, dressings, and necessary medicines. The expenses of unavoidable travel for any medical or surgical purposes are undertaken by the Department, which likewise defrays any necessary expenses in a hospital or other approved place. While undergoing such treatment and upon the certificate of a Departmental Medical Officer, a married soldier receives sustenance at the fixed rate of £2 17s. per week (inclusive of pension), with 3s. 6d. per week added for each child, up to a maximum of £3 9s. In a like situation a soldier without dependents receives sustenance at the rate of £2 2s. per week. By arrangement with the Pharmaceutical Society, upon the production of the medical officer's prescription to any pharmacist in the Commonwealth, such medicines, lotions or dressings as may be required will be immediately supplied free to the soldier. The following classes of after-discharge medical treatment are provided for—

(1) Treatment in hospitals in metropolitan areas for cases of a class which cannot be effectively dealt with in a country hospital, or cases where continuity of treatment is desirable.
(2) Treatment as out-patients in metropolitan areas and country centres.
(3) Treatment in country hospitals in cases which do not present any complications, or in cases of emergency.
(4) Treatment in homes in cases of emergency within country districts.
(5) Treatment in convalescent homes and hostels.
(6) Treatment of incurables, mentals, tuberculars, inebriates, alcoholics, and chronic epileptics in special institutions.

5. Sustenance Rates and Pensions.—The sustenance rate that may be granted to applicants awaiting fulfilment by the Department of certain specified obligations is:—(*a*) To a soldier without dependents a weekly income inclusive of pension of £2 2s.; (*b*) To a soldier with a wife a weekly income inclusive of their combined pensions of £2 17s. An additional allowance of 3s. 6d. per week is made for each child up to four, the maximum sum payable being £3 9s. per week.

Those who are eligible for this benefit are applicants awaiting employment; approved applicants waiting to take up land; blind soldiers undergoing training; students receiving training in commercial or professional occupations; trainees in technical schools; convalescents; and soldiers receiving medical treatment.

The general Pensions rates payable to Widow or Widowed Mother on Death of a Member of the Forces, or to a Member, or to the Wife of a Member, upon his total incapacity, are as follows :—

Rate of Pay of the Member per Day at Date of Death or Incapacity.	Fortnightly Pension Payable to Widowed Mother on Death of Member.	Fortnightly Pension Payable to Widow on Death of Member.	Fortnightly Pension Payable to Member upon Total Incapacity.	Fortnightly Pension Payable to Wife of Member who is Totally Incapacitated.
s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
6 0	2 0 0	2 7 0	4 4 0	1 16 0
7 0	2 3 0	2 7 0	4 4 0	1 16 0
9 0	2 9 0	2 9 0	4 4 0	1 16 0
10 0	2 12 3	2 12 3	4 4 0	1 16 0
10 6	2 13 9	2 13 9	4 4 0	1 16 0
11 6	2 16 0	2 16 0	4 4 0	1 16 0
12 0	2 17 3	2 17 3	4 4 0	1 16 0
13 0	2 19 6	2 19 6	4 4 0	1 16 0
17 6	3 10 0	3 10 0	4 4 0	2 0 0
22 6	3 17 6	3 17 6	4 5 0	2 2 6
30 0	4 9 0	4 9 0	4 15 0	2 7 6
37 6	5 0 9	5 0 9	5 5 0	2 12 6
45 0	5 12 3	5 12 3	5 15 0	2 17 6
50 0	6 0 0	6 0 0	6 0 0	3 0 0

In cases of (*a*) Widows with dependent children, and (*b*) Widows without children whose circumstances are such as in the opinion of the Commission justify an increase of the rates specified in this Schedule, and whose rate of pension, as specified in column three of this Schedule, is less than £4 4s. per fortnight, the Commission may, for such period as it thinks fit, increase the rate of pension to an amount not exceeding £4 4s. per fortnight.

A Special Rate of Pension amounting to £8 per fortnight, may be granted to members of the Forces who have been blinded as the result of War Service, and to members who are totally and permanently incapacitated (*i.e.*, incapacitated for life to such an extent as to be precluded from earning other than a negligible percentage of a living wage).

The Commission may grant a pension not exceeding the Special Rate of Pension to any member of the Forces who is suffering from tuberculosis, and who has been for at least six months an inmate of an establishment for persons so suffering, and has been discharged from that establishment.

The Special Rate of Pension shall not be payable to any pensioners who are maintained in an establishment at the public expense.

In the case of a member who has been granted the Special Rate of Pension, the wife of such member shall not be entitled to receive a pension exceeding the rate specified above.

The total number of pensions in force was 223,988, and the amount expended at end of February, 1921, was £4,954,986.

6. Summary of Work of Department from 8th April, 1918, to 28th February, 1921.—The following is a summary of the work of the Department from its inception to the latest available date :—(*a*) *Employment.*—Number of applications, 210,948; number of positions filled, 118,624. (*b*) *Vocational Training.*—Vocational training is designed for—(i) Soldiers incapacitated from following their usual occupations. (ii) Apprentices whose indentures were interrupted by war service. (iii) Widows without children. (In cases where a widow with children satisfies the State Board that adequate arrangements can be made for the care of her children during training hours, applications for vocational training may be approved.) (iv) Students whose studies were interrupted by war services. (v) Members of the A.I.F. who enlisted under the age of twenty years. Classes representing 95 trades and callings have been established, with results as follows :—Number of men completed training, 11,083; number in training, 18,742. (*c*) *Assistance other than Vocational Training and Employment.*—Applications received, 361,647; applications approved, 311,291. (*d*) *War Service Homes.*—The operations of the War Service Homes Commission to 30th June, 1921, were as follows :—Altogether 4,356 homes have been completed under the Commission, while 1,176 are at present under construction. Of this number 449 are being constructed under contract, while 727 are being erected by day labour. There have been 91 additional contracts let for houses upon which constructional work has not yet been commenced,

while tenders have been called for a further 15 houses, but these tenders have not yet been finally dealt with. The number of houses which the Commissioner has assisted to complete is 126, and a total of 10,196 existing houses has been purchased by the Commissioner on behalf of returned soldiers or dependents eligible under the Act, involving a total cost of £5,920,389. Mortgages lifted number 1,381, involving £670,643. The total applications approved by the Commissioner to 30th June, 1921, numbered 17,199, the amount involved being £10,523,190. The Commissioner has purchased approximately 2,751 acres upon which to erect homes for soldiers under the provisions of the War Service Homes Act.

7. **Assistance Granted.**—The table hereunder shews the sums granted by way of assistance during the period from the inauguration of the Department (8th April, 1918) to 28th February, 1921 :—

DEPARTMENT OF REPATRIATION.—ASSISTANCE GRANTED FROM 8th APRIL, 1918, TO 28th FEBRUARY, 1921.

Particulars.	Gift.	Loan.	General.	Total.
	£	£	£	£
Expenses in providing employment (including tools of trade and transportation expenses)	2,268,128	14,803	24,924	2,307,855
Vocational Training (including sustenance, fares, fees for instruction, books and equipment and training classes) ..	2,227,405	41,926	509,142	2,778,473
Furniture	70,171	802,857	..	873,028
Small businesses	1,600	197,894	4	199,498
Plant	785	167,219	41	168,045
Live stock	70	18,331	..	18,401
Settlers' sustenance and other expenses ..	305,162	23	10,630	315,815
Homes for blinded soldiers	1,438	..	2,619	4,057
Passages beyond the Commonwealth ..	63,181	25	62,124	125,330
Living allowances (including allowances for homes)	613,043	34,712	3,423	651,178
Educational grants for children	3,817	65	..	3,882
Medical treatment (including surgical aids and maintenance of soldiers at institutions not conducted by this Department)	662,848	..	51,980	714,828
Funeral expenses	16,493	64	..	16,557
Miscellaneous	29,140	8,483	16,293	53,916
Expenses of allotment	21	2,138	8,584	10,743
Maintenance of medical institutions ..	..	..	46,757	46,757
Grants to local government bodies to provide employment for returned soldiers ..	..	..	450,757	450,757
Grants to local committees for administrative and other expenditure ..	..	..	53,256	53,256
Payments to trainees incidental to advanced training in building trades and other expenses	1,914	..	9,215	11,129
Co-operative businesses	..	740	..	740
Totals	6,265,216	1,289,280	1,249,749	8,804,245

8. **Settlement of Soldiers on the Land.**—In 1917 at the Premiers' Conference in Melbourne it was agreed that the States should undertake the work of settling soldiers on the land but that the Commonwealth should finance them for this purpose.

The classes of persons entitled to assistance as land settlers are :—

(1) Members of the Australian Expeditionary and Naval Forces;

(2) Members of the Naval and Military Forces of any part of the King's Dominions other than the Commonwealth if they resided in Australia prior to enlistment;

(3) Munition workers and war workers who left Australia under engagement with the Imperial Government to undertake war work.

The original arrangement provided that the Commonwealth should take the responsibility of finding up to £500 per settler as working capital for improvements, implements, seed, etc., an amount which was subsequently increased to £625 per settler.

At the Premiers' Conference held in January, 1919, definite proposals were put forward by the States at the request of the Commonwealth Government and the latter agreed to finance the States to the extent shewn in the following table :—

PROVISION FOR SOLDIER SETTLEMENT, 1919.

State.	No. of Settlers.	Advances to Settlers.	Land Resumption.	Public Works.	Total.
	No.	£	£	£	£
New South Wales	8,405	5,253,125	1,208,408	5,792,658	12,254,191
Victoria	5,395	3,721,875	6,592,500	..	10,314,375
Queensland	2,826	1,766,250	200,000	415,664	2,381,914
South Australia	1,729	1,080,625	1,351,346	600,000	3,031,971
Western Australia	3,100	1,937,500	500,000	2,162,500	4,600.000
Tasmania	1,556	972,500	1,251,944	13,898	2,238,342
Total	23,011	14,731,875	11,104,198	8,984,720	34,820,793

As the number of applicants exceeded the estimates, the States sought further assistance from the Commonwealth. The basis of the agreement arrived at (Premiers' Conference, July, 1920) was that the Commonwealth Government should advance the States a flat rate of £1,000 per settler—£625 per settler (on the average) as working capital and £375 per settler (on the average) for resumptions and works incidental to land settlement, approved by the Commonwealth.

The numbers provided for to the 31st December, 1920, are as follow :—

SOLDIER SETTLEMENT, 31st DECEMBER, 1920.

State.	Quota to be Settled under Original Agreement.	No. Settled to 31st December, 1920.
	No.	No.
New South Wales	8,405	5,633(a)
Victoria	5,395	6,950
Queensland	2,826	3,977
South Australia	1,729	1,838
Western Australia	3,100	3,537
Tasmania	1,556	2,137
Total	23,011	24,072

(a) To 30th November, 1920.

The amounts reimbursed to the State Governments by the Commonwealth to the 31st March, 1921, are as follows :—

New South Wales	£6,015,135
Victoria	10,442,604
Queensland	1,805,120
South Australia	2,344,215
Western Australia	2,978,681
Tasmania	1,800,580
Total	£25,386,335

Prior to the occupancy of the land, the Repatriation Department may pay sustenance for a limited period and subject to certain conditions, and during the first two years of occupancy, sustenance may be paid for six months while awaiting actual production.

The fares of a man and his family to his place of settlement are paid by the Repatriation Department and a limited amount allowed towards the cost of removal of his household effects.

Where men are given rural training, the cost of maintenance is shared between the State Lands Department and the Repatriation Department acting on behalf of the Commonwealth.

9. Conspectus of State Laws affecting Settlement of Returned Soldiers on the Land.— In Official Year Book No. 13, pp. 1018 *et seq.*, will be found a table giving particulars of the laws of the various States relating to returned soldiers' land settlement.

Later modifications have been made with a view to simplifying procedure, and liberalising the conditions under which holdings may be acquired.

SECTION XXIX.

NEW GUINEA.

A. THE ISLAND OF NEW GUINEA.

1. **Geographical Situation of New Guinea.**—New Guinea, frequently described as the largest island in the world, lies to the north of Australia, between 0° 25′ and 10° 40′ S. latitudes, and between 130° 50′ and 150° 35′ E. longitudes. Its estimated area exceeds 300,000 square miles, the greatest length being 1,490 miles and the greatest breadth 430 miles.

A map shewing the Territory of New Guinea, Papua, and adjacent islands will be found on page 965.

2. **Discovery.**—The island was probably sighted by Abreus in A.D. 1511. The first visit by Europeans was apparently either that by the Portuguese Don Jorge de Menesis on his way from Goa to Ternate in 1526, or that by the Spaniard Alvaro de Saavedra in 1528. In 1606 Torres, having parted company with De Quiros at the New Hebrides, sailed, on his way to the Philippines, through the strait which separates the island from Australia, and which now bears his name.

3. **Colonisation.**—Little progress was made for many years in exploration and settlement. First the Portuguese, and afterwards the Dutch, who to a great extent replaced them as the principal European traders in the East, seem to have jealously excluded other traders and adventurers, and to have kept the knowledge of their discoveries to themselves. The coasts were visited by Roda, Schouten, Lemaire, Tasman, Dampier, Torres, Bougainville, and Cook; but the difficulties of navigation, the savagery of the islanders, and the tempting fields for enterprise in the more temperate regions further south, diverted the energy of traders and voyagers. Forrest describes a voyage by himself in 1774. In 1793, New Guinea was annexed by two commanders in the East India Company's service. Since that date the Dutch have made extensive surveys of the western portion, and the British and Germans have occupied and colonised the eastern. In September, 1914, German New Guinea was seized and occupied by Great Britain by means of a force raised and despatched by the Australian Government.

4. **Partition.**—The three colonising powers agreed to the partition of New Guinea, each having suzerainty over islands adjoining its own territory. The whole of the portion west of the 141st degree of latitude, comprising about 150,000 square miles, or nearly half the island, belongs to the Dutch. The eastern half was divided in almost equal portions between Great Britain and Germany, the area possessed by each (with adjacent islands) being about 90,000 square miles. An Anglo-German boundary commission, appointed for the purpose of defining the boundary between the territories of the two nations, started operations on 26th December, 1908, and completed the field-work on 27th October, 1909. The total length of boundary delimited was 66½ miles. The work was both important and difficult. For a considerable portion of the survey, the country was exceedingly rough and mountainous, and the natives hostile. In one instance, the line was carried over a range at an elevation of 11,110 feet. The Dutch colony forms part of the residency of Ternate in the Moluccas, and has not been extensively developed. The German protectorate, where considerable commercial development had taken place, included the northern part of the eastern half of the mainland, known as Kaiser Wilhelm Land, and the large islands of the Bismarck Archipelago and the Solomon Group, as well as nearly 200 smaller islands. The south-eastern portion of New Guinea, nearest Australia, is a dependency of the Commonwealth of Australia. The German Pacific protectorate was terminated in 1914.

B. PAPUA.

§ 1. General Description of Papua.

1. **Australian Dependency of Papua.**—Surveys of the east coast of New Guinea by Stanley, Yule, Blackwood, Moresby, and others, brought home to Queensland, and to Australia generally, the danger to her commerce which would result from foreign possession of the islands and coasts opposite to Cape York, and from the holding by a hostile power of the entrance to the splendid waterway inside the Barrier Reef. The mainland opposite the shores of Queensland east of the 141st meridian was therefore annexed by that colony in 1883, but the action was disallowed by the British Government. In 1884, however, a British protectorate was authoritatively proclaimed by Commodore Erskine over the region lying east of the 141st meridian as far as East Cape, with the adjacent islands as far as Kosman Island. In the year following, an agreement with Germany fixed the boundaries between the possessions of the two countries, and to Great Britain was assigned the portion now known as Papua, lying between the extreme limits of 5° and 12° S., and 141° and 155° E. The British protectorate was subsidised by Queensland, New South Wales, and Victoria, and lasted until 30th September, 1888, when it was proclaimed a possession of the Empire. Its constitution was then that of a Crown colony, in association, however, with Queensland. Administration was in the hands of a Lieutenant-Governor, aided by an Executive and a Legislative Council, and advised by a Native Regulation Board. Port Moresby, on the south coast, was made the head-quarters of the official establishment; a supreme court was established there, and magisterial courts in the districts; and an armed native constabulary force (numbering 340 on the 30th June, 1919), under a European officer, was instituted for the maintenance of order. There were also, on the same date, 821 native village constables and 396 native interpreters, warders, boats' crews, etc., employed by the Crown.

2. **Annexation by Commonwealth.**—The Territory was placed under the authority of the Commonwealth on 1st September, 1906, by proclamation issued in pursuance of Letters Patent of the 18th March, 1902, and was accepted by the Commonwealth by the Papua Act 1905, which came into force by virtue of the proclamation aforesaid. The transfer was made under the authority of section 122 of the Constitution (see p. 24 hereinbefore). The Territory is now under the administration of the Commonwealth, but not included within it, and is divided into eleven magisterial districts.

3. **Physical Characteristics.**—Papua lies wholly within the tropics. The northernmost point touches 5° S. latitude; its southernmost portion, comprising Sudest and Rossel Islands, lies between 11° S. and 12° S. latitude. It is separated from Australia by Torres Strait. The length of Papua from east to west is upwards of 800 miles; towards either end the breadth from north to south is about 200 miles, but about the centre it is considerably narrower. The Territory comprises also the islands of the Trobriand, Woodlark, D'Entrecasteaux, and Louisiade groups. The length of coast-line is computed at 3,664 miles—1,728 on the mainland, and 1,936 on the islands. The total area is about 90,540 square miles, of which 87,786 are on the mainland, and 2,754 on the islands. From the eastern end of the territory rises a chain of mountains, which forms a great central ridge and attains its greatest altitude, as it extends westwards, in the Owen Stanley Range, the highest points of which are Mount Victoria (13,200 feet), Mount Scratchley, the Wharton Range, and Mount Albert Edward. The western end of the possession is for nearly 300 miles generally low and swampy for some distance along the coast. The whole territory is well watered. The great mountains and a large portion of the lower country are covered with forest. The islands are mountainous, and, with the exception of the low coral islands of the Trobriand Group, part of Murua, and a few others of small dimensions, principally of volcanic formation. The highest is Goodenough Island, 8,000 feet. The largest rivers of the mainland flow into the Gulf of Papua. The Fly River, with its tributaries, drains an extensive area of the territory of the Netherlands, as well as of the British. Its length in British territory is about 620 miles, and it is navigable by a steam launch for over 500 miles. Other important rivers are the Turama and the Purari. There are many excellent harbours.

§ 2. Population.

The total white population of Papua on 30th June, 1920, was 1,096, made up of 693 adult males and 258 adult females (adults being persons over 16 years of age), and 81 male and 64 female children. The following table gives the white population of Papua for the last five years :—

WHITE POPULATION OF PAPUA, 1916 TO 1920.

YEAR ENDED 30TH JUNE.

1916.	1917.	1918.	1919.	1920.
992	1,036	962	971	1,096

The chief occupations of adult male Europeans were :—Government officials and employees, 106 ; planters (including managers and assistants), 145 ; storekeepers and clerks, 101 ; miners, 66. The number of missionaries is stated as 104.

It is not possible to make a reliable estimate of the number of natives, owing to the fact that much of the interior country is unexplored. It is generally assumed to be somewhere between 250,000 and 500,000. These speak many languages and dialects. The coloured population, other than Papuans, numbered on 30th June, 1920, 282, of whom 197 were mission teachers principally from Samoa, Fiji, Solomon Islands, and other South Sea Islands, while 20 were Torres Straits islanders. On the same date, half-castes, including Papuan half-castes, totalled 296. An Immigration Restriction Ordinance prohibits the immigration into the Territory of persons who fail to pass the dictation test, or who are persons of bad character, or likely to become a charge upon the public. Exemptions may, however, be granted by the Lieutenant-Governor to persons of special skill whom it is desired to employ as overseers or foremen.

At the Census of 3rd April, 1921, the European population was returned at 1,339, but this figure included the crew and passengers of the *Marsina*, numbering 87. There were also on the same date 3 Chinese, 10 Japanese, 60 Malays, 124 other Asiatics, 397 Fijians, Samoans, and other Oceanic races, and 159 half-castes.

§ 3. Native Labour, Taxation, Etc.

The rights of both employer and labourer are conserved by the Native Labour Ordinances. Service on the part of the native is voluntary, and he must be justly treated, and properly housed and fed. Employers may recruit personally, or obtain their natives through a licensed recruiter. Contracts of service must be in writing, entered into before a magistrate or other qualified officer, and the natives must be returned to their homes on completion of engagement. The labour question is complicated by the communistic system which prevails in the villages. Native custom demands that the friends or fellow-clansmen of the returned labourer receive a share in whatever he gets. The result is that the stimulus of individual interest is largely absent. During the period of service the recruiter or employer is personally responsible for the native's welfare. Refusal to work after engagement, or desertion from service, renders the labourer liable to imprisonment. On the other hand, a magistrate may terminate an engagement where unjust or harsh treatment by the employer is proved. The term of indenture must never exceed three years, and in the case of miners and carriers eighteen months is the limit, but re-engagements may be made. The magistrate must satisfy himself that the remuneration is fair, that the native is willing to undertake the service, and that there is no probability of unfair treatment or detention. Wages must be paid in the presence of an officer. A medicine chest, stocked with necessary drugs and first aid instruments, must be kept by all employers.

Just treatment, good food, and satisfactory remuneration for his labour have made the Papuan savage an excellent servant. With considerable natural aptitude and intelligence, he is able to understand readily what is required by his employer; consequently native labour is very largely engaged by the Administration for the construction of roads and public works, and by the private employer for the clearing and upkeep of plantations. While in some districts the natives manifest a marked

unwillingness to work, in other cases, inland villagers have offered themselves as labourers without suggestion from recruiters or other officers. Actual ill-treatment of native employees may be said to be non-existent.

In his Report for 1917-18 the Lieutenant-Governor drew attention to the adaptability shewn by some of the natives in the way of house-building, boat-building, the management of sailing vessels and oil launches, and in some cases as clerks.

The number engaged under contract of service during the year ended 30th June, 1920, was 6,397, as compared with 8,610 in the preceding year. Various causes have been assigned for the falling-off, the principal being the difficulty of obtaining rice, and the dislike of native labourers for the substituted foods. It is hoped to remove this by the cultivation of rice locally. At present a small quantity is grown in the Mekeo district and in other parts of the territory, and its cultivation is beginning to attract the attention of Europeans. Another cause is the decrease in the purchasing power of money, the monthly wage of 10s. not offering sufficient inducement for the natives to leave their villages. In addition, there were 1,652 natives employed for short periods who were not under contract of service, 1,172 armed constabulary and village constables, and 331 engaged in miscellaneous services such as interpreters, warders, boats' crews, messengers, etc. There were also on the same date 55 mandated children, nearly all of whom were under care of missionary agencies.

Under the Native Taxes Ordinance, passed in 1918, a tax not exceeding £1 may be imposed on natives, excepting native constables, mission teachers, natives unfit for work, and those who have not less than four living children. The proceeds of the tax are to be expended on education, or for such purposes having for their object the direct benefit of the natives as may be prescribed.

It is stated that the tax is very popular amongst the natives in many parts of the Territory, and that exemption from taxation is bitterly resented. The net receipts from the tax in 1919-20 came to £8,307, out of which small amounts were granted to the Anglican Mission and the London Missionary Society, further disbursements being contingent on the provision of a satisfactory scheme of distribution.

§ 4. Production.

1. **Papuan Products.**—The products of the territory are obtained from its agricultural, forestal, fishing, mining, and manufacturing industries. There is a Papuan court at the Imperial Institute, London, where, beside maps, handbooks and reports, a representative collection of products is shewn, additions being made to the exhibits from time to time. Displays of Papuan produce are also made at exhibitions held in the Commonwealth. The industries of Papua are not numerous, but they are becoming more diversified. In many cases, some years must elapse before the raw material is available for commerce.

2. **Agriculture.**—(i) *Soil and Rainfall.* The physical features of Papua are favourable to agriculture. Rich soils at varying elevations, and heavy and evenly-distributed rainfall, have ensured success in cultivating almost every tropical product of value. The Territory comprises immense areas of rich alluvial and volcanic soils along the coast, and equally fertile land at elevations up to 6,000 feet. Splendid rainfalls are recorded, except over a belt of country which runs back from the coast to the hills, and which has its dry season from May to November. This "dry" area is admirably suited for the production of tobacco, fibres, cotton, etc. There are 20 meteorological stations throughout the Territory. An economic museum and agricultural library have been established. By anticipating and removing many of the pioneering difficulties, the Government has made the task of the colonist an easy one. The feature of recent years has been the steady investment of capital in the development of large areas previously acquired. One of the principal difficulties of planters is the heavy growth of weeds, and the Government has undertaken experiments with the planting of grasses to take the place of weeds, and so keep down rank vegetation.

(ii) *Plantations.* On 31st March, 1920, there were 256 plantations. Agricultural settlement has been mostly in the Central and Eastern Divisions, though plantations are rapidly spreading in other districts. The total area planted was 62,162 acres, or an average of 243 acres for each plantation. The principal plantation industries entered upon up to the present are coconuts, rubber, and sisal hemp. Secondary agricultural industries are the cultivation of bowstring hemp, kapok, coffee, tobacco, vanilla, cocoa,

tapioca, cinnamon, tea, rice, and maize. The natives are compelled by an ordinance to plant coconuts for food supply. In the Kokoda district, which is not suitable for coconut planting, 8,000 rubber seeds and plants were distributed amongst the native villages in 1918. In addition to the coconuts in these plantations many more are planted over small and widely scattered areas by the older natives in accordance with custom. The following table shews the areas under the different cultures at the end of June, 1920:—

	Acres.
Coconuts	46,101
Rubber	8,363
Hemp	6,241
Coffee	85
Rice	21
Other cultures (including fruit trees)	1,351
Total	62,162

The quantity and value of the various products for the year ended 30th June, 1920, were as follows:—

Copra, 4,080 tons	£124,035
Hemp, 336 tons	12,284
Rubber, 242 tons	41,542
Total	£177,861

It was estimated in 1917 that over £1,000,000 had been expended in plantations, and, with the exception of two large British companies, practically the whole of the capital was subscribed in Australia and locally.

(iii) *Government Plantations and Experimental Stations.* At Orangerie Bay the Government coconut plantation covers an area of 1,171 acres, some of the trees being eight years old. Copra-making has been commenced, the production in 1920 being 74 tons, valued at £2,278. The Government rubber plantation on the Kemp-Welch River has an area of 230 acres, and contains over 4,000 trees large enough for tapping, but no action has been taken in this direction owing to the low price of rubber.

Sylvicultural nurseries have been established in connexion with the plantations with the object of supplying settlers with seeds and plants, which have been imported from the East and West Indies, Central America, tropical Australia, Ceylon, the Malay States, and the Solomon Islands. At the experimental stations, the suitability of the soil and climate for different products is tested, and correct methods of cultivation demonstrated. Large quantities of plants and seeds have been distributed to planters. A Government orchard, for supplying fresh fruit and vegetables, has been established at one of the stations, and yields considerable quantities of European fruit-foods.

(iv) *Indigenous Products.* There are many indigenous plants of great economic value. These comprise sandalwood and other timber trees, sugar-cane, cotton plants, rubber-both vine, nutmegs, ginger, bamboos, palms, bananas, bread-fruit, edible nuts, sago-palms, fruits, and vegetables. About 92,000 acres are held under timber licences, but little development has so far been undertaken. There are large areas of valuable timbers, but some of them are situated in mountainous country, difficult of access. The export of mangrove bark for tanning purposes amounted in 1919–20 to 1,400 tons, valued at £2,686. [See also § 4 hereinafter.]

3. Live Stock.—On 30th June, 1920, the live stock in the Territory consisted of 225 horses, 768 head of cattle, 44 mules, 6 donkeys, 463 goats, 117 pigs, and 4,786 poultry. A Government stud farm has been established for the breeding of horses. The introduction of rabbits, foxes, hares, and monkeys is prohibited.

4. Forest Products.—There is a large diversity of useful timbers in Papua. Of 120 varieties that have been catalogued, 16 are adapted to resisting heavy strains, and are suitable for girders, railway wagons, etc.; 10 for railway carriage and coach building; 15 for joinery, lining, flooring, etc.; 14 for butter boxes; 5 for boat building; 4 for piles, and 15 for cabinet work. Sandalwood is indigenous. It is largely used for cabinet work, and santal oil is distilled from its roots. Ebony is also produced for export. Rubber is

a promising industry. There are considerable areas of nativè rubber (*Ficus Rigo*); but the planters generally prefer the imported Para rubber. Guttapercha is obtained from a species of *palaquium*, which grows on the hills. Drugs, dyewoods, and spices are also obtained from indigenous plants. The mountain firs offer possibilities in the shape of turpentine oils and timbers, while the conifer *Agathis alba* yields a valuable resin. Saw mills have been established, but the output has not been sufficient to supply the local demand for building and other timber, and large quantities of sawn timber have been imported from Australia. Contracts have been made by residents to ship timber to Great Britain. The timber licenses in force during 1919 covered 92,000 acres.

5. **Fisheries.**—Pearl-shell fishing occupies an important place in the industries of Papua. A considerable number of luggers is licensed, but the returns are mostly credited to Queensland, whose boundary approaches to within a few miles of the Papuan coast. The species of tortoise which supplies the commercial tortoise-shell is also a native of the Territory. Bêche-de-mer and trochus are found along the shores and reefs. There is a dugong fishery on the coast of the Western Division. The value of fisheries exports in 1919-20 was £53,430, of which bêche-de-mer accounted for £612, pearls £25,577, trochus shell £24,255, turtle shell £136, and shell, other, £2,850.

6. **Mining.**—(i) *Variety of Minerals.* Minerals have been discovered in many places, and over an extremely wide range. Those discovered so far are—gold, copper, tin, lead, zinc, cinnabar, iron, osmiridium, gypsum, manganese, sulphur, graphite, chromite, brown coal, lignite, and petroleum. Indications of the existence of petroleum have been found at scattered intervals over an area of country covering about 1,500 square miles between Yule Island and the Purari Delta, in the Gulf Division of Papua. Quantities of oil and inflammable gas have been met with in the test bores put down, but not in sufficient bulk as yet for commercial purposes. Indications have also been noted in Dutch New Guinea, and in the portion of the Territory formerly under German control. According to one observer, the whole of the East Indian Archipelago forms one "petroliferous province," the statement being supported by the fact that the nature of the oil so far obtained in Papua is more comparable with Dutch East Indian oil than any other.

Exploitation of the Papuan oil-fields by private companies is not permitted.

A scheme has been arranged under which the Imperial Government has entered into partnership with the Commonwealth Government in further exploitation of the field. Additional labour and machinery have been provided for, and the work will be under the control of a field manager selected in England.

Of precious stones, only the topaz and beryl have been obtained. Large beds of apparently good coal also exist. A geologist was added to the Government service at the beginning of the year 1911.

(ii) *Gold.* In 1888 the first gold was discovered. The search has now spread over every division, and finds have been recorded wherever the explorers have gone. Prospecting parties are subsidised by the Government. There are 69 white miners and 956 indentured and casual labourers, of whom 50 whites and 705 indentured labourers were working on the Louisiade field. This field was the chief producer in 1919-20 with 7,471 ozs. of reef gold and 1,000 ozs. of alluvial, valued respectively at £9,700 and £3,500. The Murua field returned 400 ozs., the Yodda 450 ozs., the Gira 200 ozs., and the Lakekamu 500 ozs., the product in each case being alluvial gold. The total quantity, in fine ounces, and the value as returned of the gold yield for five years are given below :—

GOLD YIELD, PAPUA, 1915-16 TO 1919-20.

1915-16.		1916-17.		1917-18.		1918-19.		1919-20.	
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
fine ozs.	£	fine ozs.	£	fine ozs.	£	fine ozs.	£	fine ozs.	£
10,181	43,248	8,949	37,988	7,752	32,931	6,376	27,084	11,751	21,757

The alluvial gold included in the total for 1919-20 was estimated at 4,280 ozs., valued at £12,098, of which 1,000 ozs. were won on the Louisiade field and 500 ozs. at Lakekamu.

Most of the rivers, with the exception of those flowing into the Gulf of Papua, have been declared open to gold-dredging, and good yields have been obtained from many of the rivers thus dredged. The total value of gold won to 30th June, 1920, was £1,556,009.

(iii) *Copper.* There were no exports of ore in 1920. On the Astrolabe field the production of ore at Laloki and Dabuna amounted to about 7,800 tons, estimated to possess a value of £31,000. The total amount shipped to the end of June, 1919, was 8,102 tons, valued at £112,965.

(iv) *Osmiridium.* During 1920 it is estimated that about 100 ozs. of this metal, valued at £3,300, were obtained, chiefly on the Gira goldfield. The existence of osmiridium had been known for some years, but no serious attempt was made to collect it, the alluvial gold miner even picking out the larger slugs of the metal from his gold parcel and throwing them away.

(v) *Other Minerals.* Some good samples of galena (sulphide of lead) have been obtained. Small quantities of cinnabar (sulphide of mercury), graphite (or plumbago), zinc-blende, native sulphur, and other minerals are also found.

A mineral laboratory and museum have been fitted up, and are available to prospectors and others interested.

§ 5. Statistical Summary.

1. **Revenue and Expenditure.**—The revenue and expenditure for 1919-20, under principal heads, are given below; also a summary covering a period of five years. In addition to the revenue collected during the year, amounting to £85,537, a sum of £30,000 was granted by the Commonwealth Government.

REVENUE AND EXPENDITURE OF PAPUA, 1919-20.

Revenue.	£	Expenditure.	£
Customs and Excise	56,631	Lieutenant-Governor and Civil list	4,279
Post Office	2,315	Government Secretary	46,047
Licenses	1,311	Treasury	23,630
Fees, fines, etc.	(a)6,170	Lands, Mines, and Agriculture	7,832
Mining receipts	1,094	Public Works	19,658
Land revenue	4,318	Medical	12,692
Harbour dues	1,993	Department of Native Affairs	2,209
Miscellaneous receipts	3,960	Central Court	1,932
Appropriation of former years	5,964	Legislative Council	157
Sale of Government property	1,781		
Total	£85,537	Total	£118,436

(a) Including Native Labour Fees, £2,015.

REVENUE AND EXPENDITURE OF PAPUA, 1915-16 TO 1919-20.

Item.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
Revenue	49,311	63,568	72,594	73,121	85,537
Expenditure	77,913	83,740	103,178	102,962	118,436

The loans due to the Commonwealth by the Territory of Papua amount to £57,000.

2. Imports and Exports.—The value of imports and exports for the last five years is shewn in the table below :—

VALUE OF IMPORTS AND EXPORTS OF PAPUA, 1915-16 TO 1919-20.

Particulars.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
Imports..	223,040	271,640	285,792	258,112	422,741
Exports..	125,428	156,535	220,599	176,247	270,481
Total Trade ..	348,468	428,175	506,391	434,359	693,222

As in all new countries, the imports consist chiefly of articles necessary for the primal needs of the community. Thus in 1919-20 the imports of agricultural products and groceries came to £136,000 ; drapery, £53,000 ; metals and machinery, £68,000 ; tobacco, £31,000 ; oils, paints, etc., £18,000 ; beverages, £15,000 ; wood, wicker, and cane, £9,000 ; drugs, £7,000. Government stores to the value of £40,000 were also imported. The chief items of export during the last five years are as follows :—

EXPORTS OF PAPUA, 1915-16 TO 1919-20.

Article.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.
	£	£	£	£	£
Gold	43,249	37,988	32,931	27,084	21,757
Copra	19,051	40,882	68,225	53,264	124,035
Rubber	14,846	26,682	37,020	33,010	41,542
Hemp	11,999	11,463	17,682	12,532	12,284
Copper Ore	9,971	14,050	11,572	1,613	..
Pearl Shell and Trochus Shell ..	6,770	8,050	6,625	9,375	24,255
Pearls	1,000	2,400	19,250	21,550	25,577
Bêche-de-Mer	3,229	2,521	3,551	2,240	612
Bark	..	4,423	7,228	4,847	2,686

The development of the plantations is reflected above in the increased exports of copra, rubber, and hemp, and as greater areas come into bearing, these figures will, of course, increase. Up to the end of 1914-15 the copra exports were almost wholly native products. During 1919-20 there was also an export of osmiridium, amounting to 88½ ozs., valued at £2,930.

3. Postal and Shipping.—Considerable development has been shewn in means of communication—the postal returns, and the tonnage of vessels entered and cleared at ports, having largely increased. Particulars regarding postal matter are given hereunder :—

POSTAL STATISTICS OF PAPUA, 1915-16 TO 1919-20.

Year.	Letters.		Packets.		Newspapers.		Parcels.	
	Received.	Despatched.	Received.	Despatched.	Received.	Despatched.	Received.	Despatched.
1915-16 ..	157,218	112,572	30,054	2,460	100,464	13,302	2,904	876
1916-17 ..	127,296	106,836	14,724	4,476	98,016	33,900	3,108	1,044
1917-18 ..	137,850	124,656	20,214	5,850	91,866	45,738	3,606	882
1918-19 ..	159,702	114,540	10,272	5,832	125,118	42,354	4,266	1,008
1919-20 ..	164,138	135,234	15,072	8,214	141,906	46,686	5,208	1,182

The value of money orders issued in 1915-16 was £6,411 ; of those paid, £1,078. In 1919-20, the respective values were £6,441 and £2,166.

The following table shews the number, tonnage, and nationality of vessels entered and cleared at ports during the years 1915–16 to 1919–20 :—

SHIPPING.—FOREIGN-GOING VESSELS ENTERED AND CLEARED AT PORTS OF PAPUA, 1915–16 TO 1919–20.

Nationality.	Vessels.									
	Number.					Tonnage.				
	1915–16	1916–17	1917–18	1918–19	1919–20	1915–16	1916–17	1917–18	1918–19	1919–20
British	166	121	117	98	86	96,753	72,414	57,955	60,108	59,189
Foreign ..	48	50	20	..	..	151,134	158,594	63,772	..	..
Total ..	214	171	137	98	86	247,887	231,008	121,727	60,108	59,189

Throughout, the figures are exclusive of ships of war and Government vessels. The falling off in numbers and tonnage is, of course, due to the disorganization resultant on the war.

§ 6. Land Tenure.

1. **Method of Obtaining Land.**—(i) *The Land Laws.* The broad principles upon which the land laws of Papua are based are :—(*a*) No land can be alienated in fee simple ; (*b*) the rental of the land leased is assessed on the unimproved value of the land, and is subject to reassessment at fixed periods.

A detailed account of the method of obtaining land was given in Official Year Book No. 6, pp. 1083–4.

(ii) *The Leasehold System.* With a view of attracting pioneer settlers, an ordinance was passed in 1906 under which leases were granted on very liberal terms. No rent was payable for the first ten years, the heavy expense of survey was borne by the Government, and no charge was made for the preparation and registration of the leases ; that is to say, no payments whatever had to be made to the Government for 10 years. Under this system, the area under lease increased in four years from 2,089 acres to 363,425 acres ; about 140 plantations were started, and nearly 1,000 acres planted during that period.

After allowing free survey for three years, it was decided that all future applicants for agricultural leases exceeding in area 100 acres should be required to pay the cost of survey. It was also found desirable to check a tendency amongst a proportion of land applicants to obtain areas so great that the improvement conditions could not be carried out. It was therefore enacted that no leases should be granted after 1st June, 1910, exceeding 5,000 acres in extent, and that rent at the rate of 3d. per acre must be paid from the commencement on all leases exceeding 1,000 acres in area. As a result of these enactments, several leases have been forfeited. On the other hand, a stricter enforcement of improvement conditions has resulted in a substantial raising of the standard.

2. **Land Tenures.**—On 30th June, 1920, the lands of the Territory were held as follows :—

	Acres.
Area of land held by the natives	57,000,908
Area of Crown land	691,605
Area of freehold land	23,085
Area of leasehold land	230,002
Area of Territory	57,945,600

Private sales of land in the Territory have now practically ceased. The Government buys from the natives, and then leases to planters, who are forbidden to have direct dealings in land with Papuans. The position as regards leasehold tenures may be seen from the following table :—

AREA HELD UNDER LEASE IN PAPUA, 1915-16 TO 1919-20.

Year ended 30th June.	1915-16.	1916-17.	1917-18.	1918-19	1919-20.
Land held under lease (as recorded) .. acres	228,013	227,476	224,010	218,951	230,002

Of the total area of 230,002 acres shewn above, the surveyed area was 201,365 acres, of which about 196,000 acres were agricultural leases, and about 5,000 acres were held under pastoral lease.

The area of land acquired by the Crown from the natives in 1919-20 was 9,654 acres.

The total area surveyed in the Territory is 22,524 acres of freehold, and 278,554 acres of leasehold.

§ 7. Progress of Papua.

1. Statistical View of Twelve Years' Progress.—As already stated (§ 2, *supra*) the Territory was placed under the Commonwealth control on 1st September, 1906. The following table indicates the progress that has been made since that date :—

STATISTICAL SUMMARY, PAPUA, 1907 TO 1920.

Items.	Year ended 30th June. 1907.	1920.
White population ..	690	1,096
Native labourers employed (exclusive of Crown servants) ..	2,000	8,049
Number of white civil servants ..	65	106
Armed constabulary ..	185	331
Village constables ..	401	841
Territorial revenue .. £	21,813	85,537
Territorial expenditure .. £	45,335	118,436
Value of imports .. £	87,776	422,741
Value of exports .. £	63,756	270,481
Area under lease .. acres	70,512	230,002
Area of plantations .. acres	1,467	62,162
Meteorological stations established ..	3	20
Gold yield .. fine ounces	12,439	11,751
Copper ore shipped .. tons	137	..
Live stock in Territory—		
Horses ..	173	225
Cattle ..	648	768
Mules ..	40	44

C. THE TERRITORY OF NEW GUINEA.*

§ 1. German Activities in the Pacific.

1. **German Colonies in the Pacific.**—About 1857 the Hamburg firm of Godeffroy established itself in Samoa. Although not pioneers, the Germans acquired in time the trade supremacy and considerable land claims, and Apia became the base of the wider operations which Theodor Weber, Godeffroy's representative and German Consul-General in the Pacific, was planning in his country's interest. In 1874 the firm placed a trading station on the island of Mioko (Duke of York Group, to the east of New Britain). At about the same time they penetrated both the Caroline and Marshall Islands, seeking trade in copra and pearls, and recruiting labour for their plantations in Samoa. In Fiji, also, German interests were large, and there was a considerable German trade. Keen disappointment was felt in Germany when, in 1874, these islands were annexed by Great Britain.

In 1879 the Hamburg firm of Robertson and Hernsheim (afterwards Hernsheim and Co.) established a trading station at Makada (Duke of York Group); later it opened stations at Matupi (Blanche Bay) and other places in New Britain and New Ireland. The same firm founded the German South Sea Trading Coy. (Deutsche Südsee Handels—und Plantagen-Gesellschaft, usually known as "D.H.P.G."), which took over the station of the Godeffroy firm at Mioko (Duke of York Group) after the latter's failure in 1879, and established a number of stations at which native-grown copra and other products were collected and native labourers recruited for its plantations in Samoa. In 1883, 700 natives from New Britain and New Ireland were employed in Samoa, besides 1,500 in Queensland and Fiji.

The German Government during these years shewed no desire for territorial acquisitions. Bismarck, who was opposed to a colonial dominion, with its expenses of administration and deficits falling on the Empire's Budget, repudiated the annexation of New Britain, where in 1878 the commander of the war-ship *Ariadne* hoisted the German flag. The Reichstag taking a similar view in 1880 refused financial backing to the German South Sea Trading Company, and declared against the annexation of Samoa, then in the first stages of the convulsions caused by conflicting foreign influences. At the same time Bismarck was not indifferent to the interests of German merchants, German war-ships were frequently sent to visit the Pacific Islands, and, when the project of a Panama Canal shewed the importance of some of these groups on the great trade routes, the German Government entered into treaties with the natives for coaling stations at Naiafu in Vavau (Tonga Islands) (1876), at Jaluit in the Marshalls (1878), and at Saluafata in Samoa (1879).

It was not until the early eighties that the colonial movement in Germany gained sufficient strength to overcome the reluctance of Bismarck and the indifference or opposition of the Reichstag. In the summer of 1884 Bismarck promised protection to any establishments made by the newly founded New Guinea Company (Neu Guinea Kompagnie), which was organizing an expedition to eastern New Guinea. For some time the Australian colonies had been apprehensive of the intentions of the German Government in regard to New Guinea and the neighbouring islands, and individually and collectively had urged on Great Britain the necessity of protecting their own and Imperial interests by the annexation of non-Dutch New Guinea. Finally in April, 1883, the Government of Queensland went so far as to annex the territory on its own authority; an act which the British Government did not confirm, but which led to renewed negotiations between Great Britain and the Colonies, and to the meeting of the Intercolonial Conference of December, 1883, the precursor of the Federation of Australia.

Great Britain, while not intending that Germany should annex any part of New Guinea, believed the fears of the Colonies to be unfounded, and hesitated to act, prolonging negotiations on the financial aspect of annexation. Conversations at Berlin in the summer of 1884 shewed that the Germans intended to annex the New Britain Islands; and the British Government then decided to proclaim a protectorate over at least the southern shore of non-Dutch New Guinea, leaving the question of the northern shore for further discussion with the German Government. But in November, 1884, the

* The information contained in the Foreign Office Handbook dealing with "Foreign German Possessions in the Pacific" was largely drawn upon in the compilation of this sub-section.

New Guinea Company's expedition raised the German flag, not only in the New Britain Islands, but also at several points on the northern shore of non-Dutch New Guinea; and Bismarck, though he said "he had not precisely ordered" this to be done, decided to accept the *fait accompli*, on the ground that the British Government had limited its protectorate to the southern shore, and that in any case British interests were not affected by a German protectorate over the northern. There had been a misunderstanding which, it seems, was not purely accidental, but the British Government could only blame its own hesitation and want of perception, and, in view of the general political situation, and more particularly of the Egyptian difficulty, thought it wisest to recognise the German protectorate. In notes exchanged between Lord Granville and Count Münster in April, 1885, the boundaries of the spheres of the two Powers in New Guinea were fixed as nearly as possible along the line of the watershed.

In August, 1885, the German flag was hoisted at Yap in the Carolines, but Spain claimed the sovereignty, and her claim was confirmed by the Pope, who mediated between the two Powers. When, in 1899, Spain, at the conclusion of the war with the United States, having lost the Philippine Islands, had little interest in retaining the Carolines, this group, together with the Pelew and Mariana Islands (except Guam, which Spain had ceded in 1898 to the United States), was bought by Germany for £837,500.

In October, 1885, Germany took possession of the Marshall, Brown, and Providence Islands, and of Choiseul in the Solomon Islands.

In 1886 an agreement was made between Great Britain and Germany, by which their respective spheres were defined. The German sphere included the northern Solomon Islands (Bougainville, Isabel, and others), as well as the territories over which Germany had already proclaimed her protection.

In 1888 a German protectorate was proclaimed over Nauru (Pleasant Island).

In 1899 a further agreement was made by which Germany transferred to Great Britain the northern Solomons (except Bougainville and Buka, which Germany retained); and Great Britain renounced in favour of Germany all her rights in Western Samoa.

Germany was thus in possession, prior to the outbreak of war in 1914, of the following islands, whose areas were approximately as follows:—

	Square miles.
NEW GUINEA PROTECTORATE—	
The "Old Protectorate"—	
Kaiser Wilhelm Land	70,110
Bismarck Archipelago, with Bougainville and Buka	21,700
The "Island Territory"—	
Caroline and Pelew Islands	550
Mariana Islands (excluding Guam)	241
Marshall Islands (including Nauru)	176
SAMOA	1,000
Total	93,777

2. Occupation by Australian Troops.—Immediately after the outbreak of war, expeditions were organized in Australia and New Zealand to occupy the German possessions in the Pacific. The expedition from New Zealand occupied Samoa, and on the 17th September, 1914, the Acting Governor of German New Guinea signed terms of capitulation with the Officer Commanding the expedition from Australia, by which (not having authority to surrender any portion of the German possessions administered by him) he agreed that all military resistance to their occupation should cease, and that the armed German forces then in the field should be surrendered. The Australian Commanding Officer agreed, on his part, that during the military occupation by the Australian forces "the local laws and customs will remain in force so far as is consistent with the military situation."

The principal posts in the "Old Protectorate" and the island of Nauru were shortly afterwards occupied by the Australian forces; the islands north of the equator (that is, the former "Island Territory," excepting Nauru) were, by arrangement between the British and Japanese Governments, occupied by the Japanese Navy.

§ 2. General Description of the Territory of New Guinea.

1. **Geographical Position and Area.**—The present Territory of New Guinea comprises that portion of the German New Guinea Protectorate which lay south of the equator (excepting only the island of Nauru, see section xxxiv—Miscellaneous), and which was known in German times as the "Old Protectorate." The principal islands (with their German names if these differ from those now in use) and their approximate areas are as follows :—

	Square miles.
Mainland of New Guinea (Kaiser Wilhelm Land)	70,110*
Bismarck Archipelago—	
New Britain (Neu Pommern)	9,200*
New Ireland (Neu Mecklenburg)	5,000*
New Hanover (Neu Hannover)	380*
Admiralty Islands	1,000†
Solomon Islands—	
Bougainville	3,500*
Buka	200*

According to the Foreign Office Handbook, the total area of the "Old Protectorate" is 91,810 square miles.

The most northerly of the islands (Anchorite Island) lies in about lat. 1° S. ; the most southerly point of the Territory (the eastern part of its boundary with Papua) is in lat. 8° S. ; its western houndary (with Dutch New Guinea) is the meridian of 141° E. ; and its most easterly island (Bougainville) extends to longitude 156° E. From north to *south its greatest extent is nearly 500 miles ; from east to west over 1,000 miles.* Rabaul, the capital, occupies a central position ; its distances from some of the principal out-stations are : from Madang, 440 miles ; Eitape, 630 miles ; Kieta, 270 miles.

2. **Mainland of New Guinea.**—The mainland of New Guinea (Kaiser Wilhelm Land) is the northern section of eastern New Guinea. Its interior is rugged and mountainous, with heights reaching to over 11,000 feet, and is little known. The mountain ranges approach the coast, leaving comparatively little land near sea level, but this narrow strip is very fertile. All trade and communications are by sea along the coast, and the interior is left almost wholly to the native population.

The coast-line, which is about 750 miles long, is in parts fringed with coral reefs, and there are many small, lofty islands along its course. Except for Huon Gulf in the little-developed east of the country there are no deep inlets. Langemak Bay has commodious anchorage in deep water, and Finschhafen has landlocked anchorage for small vessels. In Astrolabe Bay are two or three sheltered harbours, including Konstantinhafen, Friedrich Wilhelm Hafen, and Alexishafen, which are the best on the coast. There are many other anchorages fit for schooners and small steamers in certain winds.

There are many rivers, of which the most important are the Sepik (Kaiserin Augusta) and the Ramu (or Ottilien). The Sepik rises near the junction of the boundaries with Dutch New Guinea and Papua, and flowing easterly reaches the coast in latitude 4° S. It has not been fully explored, but was found in September (not the wettest month) to be about 270 yards wide and 12 feet deep within 60 miles of the Dutch border. As it approaches the sea its tendency to divide and form islands, sandbanks, and lagoons reduces the depth to under 30 feet, but there is no actual sandbar. It is navigable for over 250 miles by vessels of 600 tons ; and in the rainy season flat-bottomed paddle steamers can ascend for more than 400 miles.

The Ramu rises in the most southerly part of the Territory and, flowing northwards, enters the sea near the mouth of the Sepik. It is navigable by steamers for a considerable distance, and was expected by the Germans to prove of great value as a waterway.

* From Foreign Office Handbook.—The Report of the Royal Commission on German New Guinea gives the following areas :—New Britain, about 10,000 sq. miles ; New Ireland, 4,600 sq. miles ; Bougainville, 3,500 sq. miles ; New Hanover, over 500 sq. miles. The Deutsches Kolonial Lexikon gives the area of New Britain as 13,100 sq. miles, and the total area of the Bismarck Archipelago as 18,100 sq. miles.

† From Deutsches Kolonial Lexikon.

3. **Bismarck Archipelago and Solomon Islands.**—The islands of the Bismarck Archipelago and the Solomons are in general mountainous, with level ground only near the coasts. The only low-lying islands are some of the Duke of York Islands and Admiralty Islands. The islands of Bougainville and Buka (Solomons) are equally rugged; Bougainville contains mountains reaching 10,000 feet. The soil is usually fertile, except on the low coral islands, where fresh water is scarce.

The coasts of the large islands generally rise fairly steeply from the water, with bold headlands; but as a rule there is a beach, often overgrown with mangroves. Sunken rocks and coral reefs fringe many of the coasts, especially of the low islands.

There are many good harbours, the chief being Blanche Bay, in New Britain, containing the good anchorages of Matupihafen and Simpsonhafen, and Kawieng Harbour, in New Ireland, Mioko in the Duke of York Islands, Peterhafen in the French Islands, Nares Harbour in the Admiralty Islands, and Queen Carola Harbour in Buka Island.

Most of the streams in these islands are too shallow and too rapid for navigation.

§ 3. Climate and Health.

1. **Climate.**—Throughout the Territory (except on the mountains) the climate is hot and moist all the year round. On the mainland, the mean temperature along the coast is about 80° F., with high humidity. There is no cool season, and rain falls in all months. In Astrolabe Bay and in the west of the country the heaviest fall is from November to March, a season during which north-westerly winds prevail. In the east, round Huon Gulf and Finschhafen, the rainiest season is from May to September. The annual rainfall on the coast is from 100 to 150 inches. In the Bismarck Archipelago the climate is much the same as on the mainland, except that during the prevalence of the south-east trades from May to September or October there is a comparatively dry season. November to March is the period of torrential downpour, accompanying north-west winds and occasional calms. The islands are outside the area of typhoons.

The following are results of observations taken at Rabaul during the period July, 1916, to December, 1920:—

	°F.
Dry bulb (shade) temperature—	
Average monthly mean	84·2
Highest monthly mean	89·8
Lowest monthly mean	63·7
Highest reading	100·0
Lowest reading	61·0
Wet bulb (shade) temperature—	
Average monthly mean	77·4
Highest monthly mean	81·1
Lowest monthly mean	75·0
Average humidity	70·5
Rainfall—	
Yearly average (1917–1920)	85·6 inches
Highest in one month	27·5 inches
Lowest in one month	0·4 inches
Yearly average number of days on which rain fell	163 days
Greatest number of days on which rain fell in one month	23 days
Smallest number of days on which rain fell in one month	2 days
Greatest fall in 24 hours	8·76 inches

2. **Health.**—The Territory presents great opportunities for the sanitarian, and, until measures can be taken to check diseases now endemic, it will remain unhealthy for Europeans. Dysentery is prevalent among the natives, and epidemics are frequent; and there have been several outbreaks of small-pox with high mortality. Elephantiasis, a skin disease known as the Tokelau ringworm, venereal disease, and tuberculosis also occur among the natives. Malaria, dysentery, and blackwater fever are prevalent among the white population, and in the past the death rate has been high. For instance, during the years 1890 to 1898 the death rate among the whites averaged 62 per 1,000 per annum. In 1909, however, it was only 24, and in 1910, 21 per 1,000.

Apart from diseases, the climate on the mainland, and at many places in the Bismarck Archipelago, is enervating for Europeans. Much improvement, however, can be expected from systematic sanitation; and the mountains in this and the neighbouring Territories may, especially when flying has become easier, do much to solve the problem of residence for whites.

§ 4. German Administration.

1. **German Colonial Policy.**—Possession was taken of New Guinea as a protectorate (Schutzgebiet), and such it remained during the whole period of German rule. It was not until 1899 that the German Government assumed full control of the administration.

German colonial policy in its inception under the guidance of Bismarck took the form of "diplomatic guardianship," that is to say, the protection by the State of business interests created by German merchants. The Imperialistic idea of a field of employment for the educated talent of the Empire was a later growth. Hence, when the problem of organizing government in the new colonial possessions was first broached, Bismarck's idea was to administer them through chartered companies on the model of some of the English dependencies, thus leaving to the merchants the work of material development. This method commended itself to him not only because it did not commit the State so directly, but also on the ground of economy.

2. ***The New Guinea Company.***—By Imperial charter of May, 1885, sovereign rights over New Guinea and the Bismarck Archipelago were conferred on the newly-founded New Guinea Company; and in December, 1886, the German Solomon Islands were added to its sphere. The company was to establish and maintain government and judicial organization, and in return received all regalian rights under the supervision of the German Government. Its path was not a smooth one; neither were its administration nor its attempts at economic development successful; and in 1889 the Imperial Government stepped in and took over the collection of taxes and duties, the Company meeting the cost. Three years later the Company resumed control and administered the possessions until 1899, when, convinced that the task was beyond its strength, it surrendered its sovereign rights for four million marks and certain other concessions, and became merely a privileged trading Company. Throughout it had lacked capital, prestige, and moral support. It had had misfortunes; it lost heavily in trying to arrange adequate shipping communications; and an epidemic in 1891 carried off half its officials. Its administration was marred by excessive centralization in the Berlin management; its service was unpopular; and incomplete cadres and continual changes in the staff produced a fatal instability in the local government, which may have been one reason for its failure to get into touch with the natives. Unsuccessful as it was, it must be remembered that it held a vast territory for Germany, while opinion at home developed in favour of a more active colonial policy.

On the economic side the Company carried out some of the explorations and experiments in the choice of places for settlements and plantations, which are the necessary preliminary work in colonization. It founded a number of stations—Stephansort (1888), Friedrich Wilhelm Hafen (now Madang), its capital (1891), and Berlinhafen (now Eitape) (1894); but its economic enterprises were often costly and attended with little success; and, while failing itself, it impeded private effort. In the Bismarck Archipelago, where the first German plantation had been established in 1882, improved administration produced better relations with the natives, and a firmer foundation was laid for subsequent expansion.

In the Marshall Islands also company government was established. In December, 1887, the firm of Robertson and Hernsheim and the D.H.P.G., which controlled the trade of the group, formed the Jaluit Company. In 1888 financial control was delegated by the German Government to this Company, and it was arranged that Imperial officials should carry on the administration, the Company defraying the cost and receiving in return exclusive authority and the monopoly of the pearl fisheries and of mining for phosphate rocks in the islands of the group (which included Nauru). A very simple administration was set up, with a Commissioner at the head, who was required to act with the advice of the Company. The arrangement worked well; there was no trouble with the natives; and the Company, confining itself chiefly to the copra trade, made good profits. In 1901 the privileges enjoyed by the Jaluit Company in the Marshall Islands were extended to the Eastern Caroline Islands.

3. Imperial Administration.—In 1899, when the Carolines and part of Samoa were annexed, and the New Guinea Company surrendered its sovereignty, the Imperial Government undertook the direct administration of all its Pacific possessions, except the Marshall Islands, where the Jaluit Company ruled as before until 1906. For administrative purposes they were divided into Samoa and New Guinea, which included all the German possessions in the Western Pacific. The system of government was simple and authoritative. The Governor, appointed by the Emperor, had wide powers, unrestricted by local legislatures, and assisted only by a Council which was little more than advisory. In New Guinea Old Protectorate (viz., the Bismarck Archipelago, Solomon Islands, and Kaiser Wilhelm Land), he was assisted by two superior Judges, and the territories were divided into seven districts—Rabaul, Kawieng, Namatanai, Kieta, Friedrich Wilhelm Hafen, Eitape, and Morobe—administered by local magistrates. Order was maintained by a native police, commanded by German officers. The seat of government was at Rabaul, whither it was transferred from Herbertshohe in 1908–10. In the New Guinea island possessions—viz., the Caroline and Marshall Islands—there were Vice-Commissioners acting under the Governor at Rabaul. The seat of government for the Eastern Carolines was at Ponape; for the Western, with the Pelew and Mariana Islands, at Yap; and for the Marshall Islands, at Jaluit. Samoa was divided into two administrative districts—Upolu and Savaii. The Governor resided at Apia, in Upolu, and was assisted by an Imperial Judge. There was a native High Chief and a native Council; and here, as also in New Guinea, some use was made of native chiefs in the administration.

The German Government sent some of the best men in the home and colonial services to its Pacific Protectorates. Several of the Governors were men of high distinction, and had highly trained staffs. The number of officials in the portions of the Protectorate of New Guinea now administered by the Commonwealth was, in 1911, 61, and in 1914, about 125.

4. Revenue.—The colonial revenue came mainly from Customs; and of the Customs revenue the greater part was derived from alcohol. Imperial subventions were necessary to enable the colonies to pay their way, though their financial position was improving with the growth of trade. Constitutionally the colonies were not integral parts of the German Empire; they did not belong to the Customs Union, and were not subject to general laws regulating taxation. Until 1893 they were charged import duties like foreign countries, but from that time they enjoyed most-favoured-nation treatment. They were at first administered by the Foreign Office, in which in 1890 a Colonial Department was established under a Colonial Director; in 1902 an unpaid advisory council of about 40 persons was formed. These arrangements did not work well, and in 1907 were superseded by the creation of a Colonial Office with large independent powers.

Throughout the period of the direct control of the German Government, the revenue was insufficient to balance the expenditure, and grants were made by the home Government. In 1904 the revenue (including that of the Island Territory) raised in the Protectorate was £10,550, the expenditure £74,100, and the Imperial subsidy £53,800; in 1913, the revenue was £87,750, the expenditure £166,100, and the Imperial subsidy £66,350. The Imperial subsidy granted to the Protectorate to 1914 amounted to about £950,000.*

§ 5. German Economic Development.

1. Produce and Crops.—The earliest traders contented themselves with the collection of native products (including copra), for which they exchanged "trade" goods. It was not until 1883 that the first plantation was laid out, at Ralun on Blanche Bay; the first plantation on the mainland was that of the New Guinea Company at Finschhafen, where the first settlement was placed in 1885.

The natives have been described as a people of peasant proprietors, and everywhere they practise a low form of agriculture. But their gardens afforded but a small amount of produce for oversea trade, and the exports of the Protectorate grew only as European plantations were made. Plantations extended but slowly, for the Protectorate is almost everywhere covered with forest, and the clearing of the land and its planting, even if labour can be had, is a slow task.

* It is interesting to notice that the grants and loans made, and other developmental expenditure, by the Australian Government before Federation, and afterwards by the Commonwealth Government to the Government of British New Guinea (Papua) amounted, up to 1914, to about £522,000, and to 1921, to about £782,000

In the early years of the Protectorate the demand for copra was much smaller than recently, and it was not foreseen that this was to become the chief export. Experiments were accordingly made—principally by the New Guinea Company, which spent a large part of its capital in this work—with a number of tropical crops.

Tobacco was cultivated with success at Astrolabe Bay on the mainland, and in the Bismarck Archipelago. Plantation managers were brought from Sumatra, but the Dutch Government, fearing competition, forbade the New Guinea Company to take skilled native labourers to their new plantations. Labourers were ultimately obtained from China and the Straits Settlements, and by 1892 there were over 1,800 Malay and Chinese coolies on the mainland; but, owing to the heavy mortality, the number soon dropped to less than 1,000. By 1893 there were 500 acres under tobacco, and the export reached 77 tons. Tobacco of high quality, rivalling the best Sumatra leaf, is said to have been produced. Later, the growing of tobacco on European plantations was abandoned, partly, it is said, for want of intelligent labour, although it continued to be grown by the natives for their own use.

The New Guinea Company also experimented in the growing of cotton, and it is said that a product of high quality was obtained. In 1896 the export amounted to 60 tons, but in recent years this crop seems to have been almost abandoned.

Sisal hemp was more successful, and there has been a steady, although small export. The quantity exported in 1913 was 10 tons. Cocoa was successfully grown; in 1913, 137 tons were exported. Experiments with coffee were also successful, but there has been little production.

Several kinds of rubber-yielding plants are indigenous on the Mainland, and rubber (mostly of the ficus and hevea varieties) was cultivated in a few European plantations. In 1913, 17 tons, valued at nearly £6,000, were exported.

None of these crops made any important contribution to the progress of the Protectorate. Its mainstay, in an increasing degree, has been the coconut palm. Indigenous in most of the islands, the coconut palm yielded copra to the natives from the beginning of European trade, and the plantations, commenced in 1882, steadily extended in area and product, until, in 1913, three-fourths in value of the total exports of the Protectorate consisted of copra.

Besides the products of agriculture, there must be mentioned the exports of birds of paradise and feathers, which amounted in 1913 to over £62,000; and of mother of pearl and other shells and marine products, which in the same year amounted to over £11,000.

The imports amounted to £425,026 in 1913, of which £184,229 was from Germany, £21,042 from the United Kingdom, £123,259 from Australia, £73,805 from Asia, and £16,705 from America. The tariff was the same, whether the goods came from Germany or from any foreign country.

2. Land Policy.—The policy of the German Government regarding tenure of land shewed a preference for freehold tenure, in contrast to that in British possessions in the Pacific, in which settlers can usually obtain land from the Crown on lease only. On the mainland and in the larger islands of the Bismarck Archipelago land could easily be obtained by settlers of any nationality.

The authorities readily gave information as to available land, and assisted new-comers in obtaining labour. Good land was offered at about 2s. per acre, and payment might be spread over several years.

The German Government attempted to establish a colony of small planters, with 250 acres apiece, in the Baining district of New Britain. The project met with some success, but many of the settlers lacked the capital necessary to support the heavy initial expenses of cultivation in the South Sea Islands. It has been estimated that the cost of preparing forest land for agriculture amounts, on an average, to £60 per acre, and the small planter is further placed at a disadvantage by the interval that elapses before the most profitable crops, such as coconuts and cocoa, come to maturity. It appears, therefore, that the powerful company with large estates is destined to play the leading part in the agricultural development of the German possessions in the Pacific.

3. Land Alienated.—On 1st January, 1914, the total area alienated was 499,751 acres, of which 192,458 were on the mainland. The area cultivated was 84,488 acres, of which about 16,000 acres were on the mainland; and the area in bearing, 28,629 acres, of which 5,307 were on the mainland.

The areas under the most important crops on 1st January, 1914, were :—

Crop.	Bismarck Archipelago.	Mainland.
Cereals—	acres.	acres.
Maize	312	20
Rice	10	100
Tuberous plants—		
Arrowroot	35	..
Taro	100	62
Palms—		
Coconut	63,775(a)	13,970(a)
Oil palm	2	2
Indiarubber—		
Ficus	1,967	1,825
Hevea	912	365
Kastilloa	417	125
Fibre-yielding plants—		
Cotton	..	45
Sisal hemp	7	155
Cocoa	960	..
Coffee	152	..
Lemon and citronella grass	300	..

(a) Of which 20,380 in Bismarck Archipelago and 3,417 on the mainland were in bearing.

§ 6. Australian Military Occupation.

1. **General.**—German New Guinea remained in military occupation by the Australian Forces from September, 1914, until May, 1921. The Government of the country was carried on by the officer commanding, as Military Administrator, and all posts in the former civil administration were filled by members of the Forces. The Government was conducted on much the same lines as in German times, as the terms of the capitulation by which local laws and customs were to remain in force so far as consistent with the military administration, as well as the restrictions imposed by general practice on the powers of a military occupant, prevented any great changes from being made. It was accordingly the principal object of the Australian Government to maintain the existing state of affairs in the Territory, until its future control should be decided at the end of the war.

Both executive and legislative power in the Territory were vested in the Administrator, subject to instructions from the Minister for Defence. A large number of Ordinances were made by the Administrator in pursuance of his military powers, most of them concerned with the routine affairs of government. Perhaps the most noteworthy of the changes introduced by the Military Administration was in the treatment of native labourers (see § 8 hereinafter).

Germans resident in the Territory were, for the most part, allowed to remain during the military occupation. Civil officials were, however, allowed to return to Germany, but certain planters and others whose conduct was unsatisfactory were deported to Australia.

Most of the planters, and the large companies which owned plantations, carried on their business as usual; but they could not remit their profits to Germany, and accordingly, expended a large proportion of them in the Territory in making new plantations. The result was that the area under coconuts, 76,847 acres in 1914, grew by December, 1918, to 133,960 acres. The exports from the Territory were much interrupted by difficulties in shipping and marketing, but a very large increase over the amount in German times was becoming visible.

Imports to the Territory also grew rapidly. From £425,026 in 1913 the value increased to £588,793 in 1920; and with this increase grew the revenue of the Territory, of which Customs duties were the principal part.

In 1919 it was decided by the principal Allied and Associated Powers that the Territory of New Guinea, which Germany gave up as one of the terms of peace, should be entrusted under Mandate from the League of Nations to the Government of the Commonwealth. The issuing of the Mandate was, however, delayed; and it was not until 17th December,

1920, that its terms were settled, and the Mandate itself did not reach Australia until April, 1921. During this period the Government had to remain in form a military one, and subject to the limitations imposed by the terms of capitulation.

The Treaty of Peace provided that German nationals resident in her former colonies might be repatriated; and that the property rights and interests of German nationals in former colonies might be retained and liquidated by the Allies, the proceeds being credited to Germany in part payment of the reparation payable by her under the Treaty.

In pursuance of these powers, in September, 1920, the property of the principal German companies in the Territory, and in March, 1921, that of a large number of German planters, was vested in the Public Trustee; and the management of their businesses and plantations was entrusted (pending the sale or other disposal of the properties, which has not yet been authorized) to an Expropriation Board. The total value of the properties expropriated has been roughly estimated at from £4,000,000 to £5,000,000. About 80 Germans, who had lost their former employment with German companies or whose properties have been expropriated, had, up to September, 1921, left the Territory.

§ 7. Civil Government.

1. **Mandate.**—The Mandate for the Territory is as follows :—

THE COUNCIL OF THE LEAGUE OF NATIONS :—

Whereas by Article 119 of the Treaty of Peace with Germany signed at Versailles on June 28th, 1919, Germany renounced in favour of the Principal Allied and Associated Powers all her rights over her overseas possessions, including therein German New Guinea and the groups of islands in the Pacific Ocean lying south of the Equator other than German Samoa and Nauru ; and

Whereas the Principal Allied and Associated Powers agreed that in accordance with Article 22, Part I. (Covenant of the League of Nations), of the said Treaty, a Mandate should be conferred upon His Britannic Majesty to be exercised on his behalf by the Government of the Commonwealth of Australia to administer New Guinea and the said islands, and have proposed that the Mandate should be formulated in the following terms ; and

Whereas His Britannic Majesty, for and on behalf of the Government of the Commonwealth of Australia, has agreed to accept the Mandate in respect of the said territory and has undertaken to exercise it on behalf of the League of Nations in accordance with the following provisions ; and

Whereas, by the afore-mentioned Article 22, paragraph 8, it is provided that the degree of authority, control or administration to be exercised by the Mandatory not having been previously agreed upon by the Members of the League, shall be explicitly defined by the Council of the League of Nations,

Confirming the said Mandate, defines its terms as follows :—

ARTICLE 1.

The territory over which a mandate is conferred upon His Britannic Majesty for and on behalf of the Government of the Commonwealth of Australia (hereinafter called the Mandatory) comprises the former German Colony of New Guinea and the former German islands situated in the Pacific Ocean and lying south of the Equator, other than the islands of the Samoan group and the island of Nauru.

ARTICLE 2.

The Mandatory shall have full power of administration and legislation over the territory subject to the present mandate as an integral portion of the Commonwealth of Australia, and may apply the laws of the Commonwealth of Australia to the territory, subject to such local modifications as circumstances may require.

The Mandatory shall promote to the utmost the material and moral well-being and the social progress of the inhabitants of the territory subject to the present mandate.

ARTICLE 3.

The Mandatory shall see that the slave trade is prohibited, and that no forced labour is permitted, except for essential public works and services, and then only for adequate remuneration.

The Mandatory shall also see that the traffic in arms and ammunition is controlled in accordance with principles analogous to those laid down in the Convention relating to the control of the arms traffic, signed on September 10th, 1919, or in any convention amending the same.

The supply of intoxicating spirits and beverages to the natives shall be prohibited.

ARTICLE 4.

The military training of the natives, otherwise than for purposes of internal police and the local defence of the territory, shall be prohibited. Furthermore, no military or naval bases shall be established or fortifications erected in the territory.

ARTICLE 5.

Subject to the provisions of any local law for the maintenance of public order and public morals, the Mandatory shall ensure in the territory freedom of conscience and the free exercise of all forms of worship, and shall allow all missionaries, nationals of any State Member of the League of Nations, to enter into, travel and reside in the territory for the purpose of prosecuting their calling.

ARTICLE 6.

The Mandatory shall make to the Council of the League of Nations an annual report to the satisfaction of the Council, containing full information with regard to the territory, and indicating the measures taken to carry out the obligations assumed under Articles 2, 3, 4, and 5.

ARTICLE 7.

The consent of the Council of the League of Nations is required for any modification of the terms of the present mandate.

The Mandatory agrees that if any dispute whatever should arise between the Mandatory and another Member of the League of Nations relating to the interpretation or the application of the provisions of the Mandate, such dispute, if it cannot be settled by negotiation, shall be submitted to the Permanent Court of International Justice provided for by Article 14 of the Covenant of the League of Nations.

The present Declaration shall be deposited in the archives of the League of Nations. Certified copies shall be forwarded by the Secretary-General of the League of Nations to all Powers Signatories of the Treaty of Peace with Germany.

Made at Geneva the 17th day of December, 1920.

2. **New Guinea Act.**—In anticipation of the issuing of the Mandate, the Commonwealth Parliament had already, in September, 1920, passed the New Guinea Act 1920, by which the Governor-General was authorized to accept the Mandate when issued. The Territory was, by the Act, declared to be a Territory under the authority of the Commonwealth, by the name of the Territory of New Guinea.

The Act provided that there should be an Administrator, who should be charged with the administration of the Territory. The power to legislate for the Territory was to be exercised by the Governor-General; and no Council—legislative, executive, or advisory—was provided for.

The Act also provided for the observance of the safeguards in the interests of the natives set out in the Mandate, and by it forced labour was absolutely forbidden.

3. **Establishment of Civil Government.**—On receipt of the Mandate, arrangements were made by the Prime Minister, under whose control the administration of the Territory was placed, for the establishment of Civil Government; and on 9th May, 1921, a proclamation was issued in Rabaul that the military occupation had that day terminated. On the same day the first Ordinances made by the Governor-General under the New Guinea Act 1920 came into force. The most important of these was the Laws Repeal and Adopting Ordinance 1921, which provided that German laws should cease to apply to the Territory; that certain Acts of the Commonwealth should be applied to the Territory; that certain Statutes of Queensland and certain Ordinances of Papua should be adopted as laws of the Territory; that the Acts, Statutes, and laws of England in force in the State of Queensland, and the principles and rules of common law and equity in force in England, should, as far as circumstances allowed, be applied in the Territory; and that the Ordinances and other legislative acts of the Military Administration should remain in force.

The Ordinance also preserved the rights of natives in land, and the existing rights, privileges and customs of the natives in regard to cultivation, barter, hunting, and fishing; and it provided that tribal institutions, customs, and usages should continue, so far as they were not repugnant to the general principles of humanity.

Other Ordinances which came into force on the same day provided for the establishment of courts of law, and for the prohibition of the supply to natives of firearms, ammunition, intoxicating liquor, and opium.

Legislation relating to mining and lands is in preparation; and immediate measures are proposed to carry out the obligations undertaken by the Commonwealth under the Mandate to "promote to the utmost the material and moral well-being and the social progress of the inhabitants of the Territory."

For administrative purposes, the Territory is divided into ten Districts, named after the principal stations in them, as follows:—In New Britain: Rabaul, Talasea, and Gasmatta; on the Mainland: Morobe, Madang, and Eitape; in New Ireland and New Hanover: Kawieng and Namatanai; in Admiralty Islands and adjoining islands: Manus; in Solomon Islands: Kieta. Each District is under a District Officer, assisted by a small staff.

4. Revenue and Expenditure.—The revenue and the expenditure for the year 1921-22 are estimated to balance at £237,650. The principal items are:—

REVENUE.		EXPENDITURE.	
Customs	£105,000	Administrator's Office	£2,966
Licences	8,000	Government Secretary's Department *(including Printing and Motor Transport Departments)*	12,450
Business Tax	*10,000*	Justice	4,740
Head Tax	25,000	Treasury (including Government Stores)	19,857
Shipping Services	40,000	Audit	3,030
Wireless	13,400	Lands and Survey	12,030
Health Department	6,000	Native Affairs	11,720
Land and Survey Department	9,000	Public Works (including Wharves, *£18,450*)	*28,114*
Sale of Stores	4,250	Trade and Customs (and Post Office)	5,310
Post Office	5,000	Agriculture	7,788
Printing	1,000	Health and Sanitation	15,285
Agriculture	4,000	Harbour Master and Ships	37,430
Stamp Duties	*3,000*	Wireless	17,500
Law Fees and Fines and Probate Duty	3,000	Advance to Treasurer	13,000
Miscellaneous	1,000		£191,220
		District Services.	
		Kawieng	£9,350
		Kieta	7,310
		Madang	7,100
		Manus	5,570
		Namatanai	4,920
		Eitape	6,820
		Morobe	5,020
		Talasea	2,700
		Gasmatta	2,640
			£51,430
		Total	£242,650
		Less estimated savings	5,000
	£237,650	Total	£237,650

§ 8. Native Population.

1. **General.**—The natives of the mainland are for the most part mixed Papuans and Melanesians, split up into many tribes, between whom, where Government influence has not been established, there is continual strife. The Germans found them unwilling to work, and labourers for the plantations had to be imported from other parts of the Territory, as well as from Java and China.

In the islands, the natives are chiefly Melanesians, but there are many racial elements which differ from one another in appearance, manners, customs, and speech. The Admiralty Islanders shew a Papuan and perhaps Polynesian admixture, and the natives in the extreme west of the Archipelago have Malay or even Chinese affinities.

Most of the islanders are energetic, and of good physique, with the exception of those on some of the smaller western islands, and the inhabitants of the Gazelle Peninsula (New Britain), who are weak and much diseased.

The Buka Islanders were considered by the Germans to be the best workers, and were largely recruited for police duties. The Admiralty Islanders are also very virile and are good sailors.

Many languages are used in the Territory. The Germans made some attempt to encourage the use of German, but with little success. At the native school at Namanula, the dialect of the Blanche Bay natives was taught, with the idea of spreading it throughout the Protectorate, but this plan had made little progress when the school was closed in 1914. The "lingua franca" throughout the Territory was "bêche-de-mer" or "pidgin" English.

2. **Education of Natives.**—The education of the natives was left by the German Government to the missionaries, who were able to reach only a small proportion of the population. In 1907 the Government opened a school at Namanula, near Rabaul, to give elementary education and to train the natives in handicrafts. Pupils came from all parts of the Protectorate, and in 1914 they had increased to 121. By 1913 it had become possible to employ ex-pupils in the offices and works of the Government. At the outbreak of the war, plans were in preparation to establish a workshop at Rabaul for industrial training, and to open schools at out-stations. The results of the schools were of good promise, and encourage the hope that a considerable number of the natives may prove fit for training as clerks, artisans, motor drivers, and the like, if not for the lower grades of the professions.

3. **Control and Welfare of Natives.**—In their treatment of the natives, the Germans allowed practices not tolerated in British Colonies. Abuses occurred in connexion with the recruiting of labourers for the plantations; and employers were allowed to flog their labourers for offences in relation to their employment. There was, indeed, a fundamental difference in outlook towards the natives between the German Government and that of the Governments of British Possessions, such as that of Papua. The German Government seems to have looked upon the native as a means to an end, that end being the development of the country solely in the interests of the European settler; whereas in British colonies the welfare of the native is usually regarded as being in itself of the first importance. Nevertheless, the German policy has been described by a well-informed missionary as being, on the whole, just and progressive.

The control of the natives by the German Government was carried out by District Officers, who were stationed at head-quarters in the various Districts into which the Protectorate was divided. These District Officers dispensed minor justice, and organized patrols throughout their district for the purpose of collecting taxes in places where that was practicable, and of securing order amongst the native tribes, who were prone to wage war on each other.

It was the practice to ascertain the man of greatest influence in each community and appoint him "Luluai," or chief; a second native was chosen as "Tultul," or interpreter, through whom Government instructions were conveyed to the "Luluai," who was held responsible for their execution and for the general welfare of the people. There were very large areas, chiefly on the mainland, which were not under Government

influence, and of which little was known. Although Government influence was much extended during the military occupation, there are still large areas which have never been visited by white men.

When the Australian Forces occupied the Territory in 1914 they found the draft of an amending Native Labour Ordinance which the German Government was about to bring into force; and this formed the basis of the Native Labour Regulations enacted by the Military Administrator in 1915.

An important amendment in the German draft was, however, made by prohibiting the corporal chastisement of any labourer by any plantation owner or any person other than a Government official duly appointed in that behalf in pursuance of a Judge's order or the sentence of a Court. In 1919 the flogging of natives, under any circumstances whatsoever, was forbidden.

Other changes in regard to native labourers made during the Military Administration included the provision of additional safeguards in regard to recruiting; and attention was also given to the housing, food, clothing, medical attendance, and general comfort and well-being of natives working on plantations.

The welfare of the natives is directly connected with the economic future of the Territory, for, without their labour, little development can be expected in a country which is unsuited for white labourers, and to which coloured labourers of other races are not admitted. The Germans relied, in part, on force in recruiting native labourers and in compelling them to work. Despite the abolition of such methods under the military occupation, the number of native indentured labourers has largely increased. In 1914, according to the German returns, there were 17,529 labourers on plantations; in May, 1921, there were 30,849; and, during the same period, the cultivation of coconuts by natives for their own use and for sale of copra produced by themselves, largely increased.

§ 9. Asiatics in the Territory of New Guinea.

1. **General.**—Malays seem to have been the first Asiatics to be brought by the Germans to German New Guinea; 37 of them are recorded on the mainland in 1885. About 1889 the New Guinea Company began to bring Chinese, Malays, and Javanese in growing numbers from Singapore and Java to work on its plantations; by 1892 there were about 1,800 on the mainland. By 1898 the number had gone down to 300 or 400.

About ten years later, Chinese from China were brought to the Protectorate; in 1911 there were 555, in 1914, 1,377 and in 1921, 1,200. The number of Malays and Javanese decreased; in 1914 it was 163, and in 1921, 160.

In 1895 there were 2 Japanese in the Protectorate, in 1911 there were 25, in 1914, 103, and in 1921, 87. The total Asiatic population was 1,681 in 1914, and 1,447 in 1921. There were also 80 Caroline Islanders and kindred people, and 94 half-castes.

Under the German administration, Chinese, Malays, and other Asiatic labourers had a status somewhat superior to that of the natives. Japanese, although they had no rights under treaty (for the German-Japanese Treaty of Commerce and Navigation of 1911 did not apply to German New Guinea, as it was only a "Schutzgebiet"), had a status equal in many respects to that of Europeans. They could not, however, acquire land in freehold; but both they and Chinese (if able to read and write a European language) could obtain leases up to 30 years. Ordinances provided safeguards in the interests of Chinese and other non-indigenous natives brought to the Protectorate; the German Government welcomed Chinese labourers, whose numbers were increasing rapidly before the war. The Government did not look so kindly on the immigration of large numbers of Japanese or on their acquisition of important interests in the Protectorate, but no obstacle seems to have been placed in the way of their entering the Protectorate.

The Chinese provide the skilled artisans and domestic servants of the Territory, and many of them are small traders. There is only one Japanese firm of any size, but it is not a serious competitor with European firms; most of the Japanese residents are employed in its plantations, shipyards, and stores.

§ 10. Statistical Summary.

1. European and Asiatic Population.—The following tables shew the white and Asiatic populations from 1885 to 1921 :—

TERRITORY OF NEW GUINEA.—WHITE POPULATION, 1885 TO 1921.

1885	64	1893	190	1910	687
1886	97	1894	209	1911	723
1887	122	1895	203	1912	822
1888	148	1896	228	1913	968
1889	145	1897	251	1914	1,027
1890	164	1898	262	1917	818(a)
1891	179	1907	529	1921	1,265(b)
1892	186	1909	655		

(a) Does not include troops. (b) Including 262 troops (engaged in Administration).

TERRITORY OF NEW GUINEA.—ASIATIC POPULATION, 1885 TO 1921.

—	Chinese.	Malays and Javanese.	Japanese.	Others.
1885	..	37	..	..
1890	114	270	..	..
1892	1,085	757	..	..
1895	480	544	2	..
1898	156	200	..	..
1911	555	136	25	26
1914	1,377	163	103	38
1917	1,452	(a)	112	(a)
1921	1,185	160	87	..

(a) Not separately enumerated.

2. Native Population.—It has not yet been possible to make an enumeration, or even an estimate for the whole Territory, of the native population.

The latest figures published by the German Government were as follows, the numbers enumerated being those in the areas under Government influence. The estimate for other areas, it will be seen, is incomplete, as the mainland (most of which was not under Government influence) was not included.

TERRITORY OF NEW GUINEA.—NATIVE POPULATION, 1st JANUARY, 1914.

Island.	Enumerated.	Estimated.	Total (approx.).
New Britain	42,926	42,700	85,000
New Ireland	26,488	2,500	29,000
Duke of York Group	3,049	..	3,049
Witu or French Islands	2,523	..	2,523
Admiralty Islands	4,736	7,500	13,000
North-western Islands	992	..	992
New Hanover	6,539	..	6,539
Islands between New Ireland and New Hanover	811	..	811
St. Mathias, Squally Island, and Tench Island	2,160	800	3,000
Fisher and Gardner Islands	3,483	..	3,483
Lihir, Tanga, and Anir Islands	4,692	1,000	5,700
Nissan Island	1,562	..	1,562
Cartaret Island	391	..	391
Fead, Mortlock, and Tasman Islands	218	..	218
Buka and adjoining Islands	6,810	..	6,810
Bougainville	9,160	23,500	32,000
The Mainland	35,535	No estimate made	35,535(a)
	152,075	..	230,000(a)

(a) Not including any estimate for the portion of the mainland not under Government influence.

3.* **Imports and Exports.**—The following tables show the values of imports and exports for the years 1887 to 1920, details of exports from 1913 to 1920, and imports from and exports to various countries for 1913 to 1920 :—

TERRITORY OF NEW GUINEA.—IMPORTS AND EXPORTS, 1887 TO 1920.

Year.	Imports.	Exports.	Total.
	£'000.	£'000.	£'000.
1887	17	20	37
1888	20	17	37
1889	20	18	38
1890	20	19	39
1891	21	21	42
1892	22	20	42
1893	24	22	46
1894	32	24	56
1895	36	25	61
1896	34	34	68
1897	37	31	68
1898	39	34	73
1899	..	..	..
1900	82	49	131
1901	81	69	150
1902	112	55	167
1903	143	59	202
1904	114	58	172
1905	144	65	209
1906	162	77	239
1907	167	98	265
1908	152	84	236
1909	131	120	251
1910	180	178	358
1911	260	201	461
1912	288	247	535
1913	425	402	827
1914	..	..	..
1915	153	167	320
1916	166	187	353
1917	232	339	571
1918	297	407	704
1919	384	475	859
1920	589	916	1,505

TERRITORY OF NEW GUINEA.—DETAILS OF EXPORTS, 1913 AND 1916 TO 1920.

Commodity.	1913.	1916.	1917.	1918.	1919.	1920.
	£	£	£	£	£	£
Cocoa	7,571	5,143	10,277	10,810	11,901	13,629
Copra	308,684	167,632	306,081	373,432	441,613	807,497
Stone and Ivory Nuts ..	2,357	160	183	85	224	273
Rubber	5,980	1,001	5,542	1,301	1,749	2,289
Sisal Hemp	305	..	..	..	..	..
Other Agricultural Products	1,183	1,970	1,256	596	147	2
Timber	176	..	..	..	..	..
Birds of Paradise and Feathers	62,809	100	25	..	1,022	39,391
Mother-of-pearl and other Marine Products ..	11,096	11,121	16,006	20,819	18,730	52,890
Miscellaneous	1,777	..	..	10	45	40
Totals	401,938	187,127	339,370	407,053	475,431	916,011

TERRITORY OF NEW GUINEA.—IMPORTS FROM VARIOUS COUNTRIES, 1913 AND 1916 TO 1920.

Year.	Australia.	Germany.	United States.	Japan.	Other Countries.	Total.
	£	£	£	£	£	£
1913	123,259	184,229	16,705	2,000	98,833	425,026
1916	138,875	..	..	809	..	139,684
1917	225,382	..	..	6,217	..	231,599
1918	293,766	..	..	31,427	..	325,193
1919	363,132	..	..	21,064	..	384,196
1920	588,793	..	..	..	..	588,793

TERRITORY OF NEW GUINEA.—EXPORTS TO VARIOUS COUNTRIES, 1913 TO 1920.

Year.	Australia.	Germany.	United States.	Japan.	Other Countries.	Total.
	£	£	£	£	£	£
1913	16,285	375,756	492	4,800	4,585	401,918
1916	183,214	..	..	3,903	..	187,117
1917	312,185	..	25,800	1,385	..	339,370
1918	373,934	..	18,000	15,119	..	407,053
1919	475,432	..	..	..	..	475,432
1920	727,011	..	..	..	189,000(a)	916,011

(a) 5,113 tons Copra to the United Kingdom.

4. **Export of Copra.**—The export of copra in 1884 reached about 1,300 tons, gradually increasing until 1898, when 2,500 tons were exported. By the year 1904 the figure had risen to 4,400 tons, and thenceforward increased until 1913, when a total of 14,000 tons was recorded. During the next few years the figures again increased; in 1918 nearly 21,000 tons were exported, and it is estimated that about 29,000 tons will be exported in 1921.

5. **European Plantations.**—The total area of European plantations for the year 1885 to 1918 is shown in the following table :—

TERRITORY OF NEW GUINEA.—AREA OF EUROPEAN PLANTATIONS, 1885 TO 1918.

Year.	Total Area.	Area in Coconuts (including Area not in Bearing).
	Acres.	Acres.
1885	148	(a)
1890	678	(a)
1895	2,152	(a)
1898	6,763	(a)
1909	45,064	39,595
1911	58,837	51,510
1912	63,300	56,133
1913	72,473	64,822
1914	84,488	76,847(b)
1918 (December)	..	133,960†(c)

(a) Not recorded.
(b) Of which 23,572 acres were in bearing.
(c) Of which 44,169 acres were in bearing. In addition it was estimated there were 49,000 acres of coconuts owned by natives; most of the produce of these was used as food.

The area of European plantations of coconuts in the various islands in December, 1918, was :—

TERRITORY OF NEW GUINEA.—EUROPEAN COCONUT PLANTATIONS, DECEMBER, 1918.

Island.	Not Bearing.	Bearing.	Total.
	Acres.	Acres.	Acres.
New Britain	23,320	19,528	42,848
New Ireland	26,268	8,528	34,796
Admiralty Islands	7,658	5,350	13,008
Solomon Islands	10,258	3,114	13,372
Mainland	22,285	7,651	29,936
	89,789	44,171	133,960

6. **Native Labourers.**—The number of native labourers employed on plantations and their distribution among the various districts are shown below :—

TERRITORY OF NEW GUINEA.—NATIVE LABOURERS EMPLOYED ON PLANTATIONS, 1890 TO 1921.

Year.	Number.	Year.	Number.
1890	869	1911	10,984
1895	2,246	1912	13,449
1898	2,348	1913	14,990
1908	8,275	1914	17,529
1909	8,311	1921 (May)	30,849(a)
1910	9,460		

(a) Number indentured on the 9th May, 1921.

TERRITORY OF NEW GUINEA.—DISTRIBUTION OF INDENTURED NATIVE LABOURERS, MAY, 1921.

Island and District.	Number.	Island and District.	Number.
New Britain—		Admiralty Island—	
Rabaul	8,260	Manus	3,377
Talasea	926	Solomon Islands—	
Gasmatta	338	Kieta	3,129
Kokopo	3,421	Mainland—	
New Ireland and adjoining islands—		Morobe	921
		Eitape	1,215
Kawieng	3,846	Madang	3,549
Namatanai	1,867		
		Total	30,849

7. Revenue and Expenditure.—The following tables shew the revenue and expenditure under German administration from 1904 to 1914 and under British administration from 1914 to 1921 respectively:—

PROTECTORATE OF GERMAN NEW GUINEA (INCLUDING NAURU AND THE ISLANDS HELD UNDER MANDATE FROM JAPAN).—REVENUE AND EXPENDITURE, 1904 TO 1914.

Year.	Customs.	Taxes.	Other Revenue derived from Protectorate.	Total Revenue from Protectorate.	Subsidy from Imperial German Government.	Expenditure.
	£	£	£	£	£	£
1904 ..	2,850	2,450	5,250	10,550	53,800	74,100
1905 ..	3,700	6,450	6,300	16,450	50,700	90,400
1906 ..	6,100	10,400	7,100	23,600	83,350	106,550
1907 ..	8,450	10,600	10,750	29,800	74,700	98,850
1908 ..	10,550	27,800	15,050	53,400	76,200	130,050
1909 ..	10,150	35,700	14,950	60,800	45,800	116,400
1910 ..	15,400	42,450	19,900	77,750	46,150	119,850
1911 ..	12,700	40,300	15,950	68,950	37,950	109,150
1912 ..	15,150	43,500	19,150	77,800	60,400	138,200
1913 ..	18,300	47,750	21,700	87,750	66,350	166,100
1914 ..	19,950(*a*)	57,500(*a*)	27,350(*a*)	104,800(*a*)	85,350(*a*)	191,700(*a*)

(*a*) These were the amounts in the estimates made by the German Governor to the Imperial German Government. According to another authority, the Imperial subsidy in 1914 was fixed at £136,000 and the expenditure £241,250.

TERRITORY OF NEW GUINEA.—REVENUE AND EXPENDITURE, 1914 TO 1921.

	Revenue.	Expenditure.
September, 1914, to 31st August, 1915	£39,607 ..	(*a*)
1st September, 1915, to 30th June, 1916	77,287 ..	(*a*)
1st July, 1916, to 30th June, 1917	115,559 ..	(*a*)
1st July, 1917, to 30th June, 1918	139,921 ..	(*a*)
1st July, 1918, to 30th June, 1919	143,636 ..	167,134(*a*)
1st July, 1919, to 30th June, 1920	202,158 ..	160,407(*a*)
1st July, 1920, to 30th June, 1921	193,957 ..	215,315(*a*)
1st July, 1921, to 30th June, 1922	237,650(*b*) ..	237,650(*b*)

(*a*) The Revenue during these years was applied in maintaining the Government of the country and (to the amount of £220,225) in part payment of stores, transport, etc., for the use of the Expeditionary Force which carried on the Government. The pay and allowances of the Force (£661,541) and the balance of the cost of stores, etc. (£254,535), making a total expenditure on military account of £916,076, were defrayed from Commonwealth funds.

(*b*) Estimate.

7. **Revenue and Expenditure.**—The following tables shew the revenue and expenditure under German administration from 1904 to 1914 and under British administration from 1914 to 1921 respectively :—

PROTECTORATE OF GERMAN NEW GUINEA (INCLUDING NAURU AND THE ISLANDS HELD UNDER MANDATE FROM JAPAN).—REVENUE AND EXPENDITURE, 1904 TO 1914.

Year.	Customs.	Taxes.	Other Revenue derived from Protectorate.	Total Revenue from Protectorate.	Subsidy from Imperial German Government.	Expenditure.
	£	£	£	£	£	£
1904 ..	2,850	2,450	5,250	10,550	53,800	74,100
1905 ..	3,700	6,450	6,300	16,450	50,700	90,400
1906 ..	6,100	10,400	7,100	23,600	83,350	106,550
1907 ..	8,450	10,600	10,750	29,800	74,700	98,850
1908 ..	10,550	27,800	15,050	53,400	76,200	130,050
1909 ..	10,150	35,700	14,950	60,800	45,800	116,400
1910 ..	15,400	42,450	19,900	77,750	46,150	119,850
1911 ..	12,700	40,300	15,950	68,950	37,950	109,150
1912 ..	15,150	43,500	19,150	77,800	60,400	138,200
1913 ..	18,300	47,750	21,700	87,750	66,350	166,100
1914 ..	19,950(a)	57,500(a)	27,350(a)	104,800(a)	85,350(a)	191,700(a)

(a) These were the amounts in the estimates made by the German Governor to the Imperial German Government. According to another authority, the Imperial subsidy in 1914 was fixed at £136,000 and the expenditure £241,250.

TERRITORY OF NEW GUINEA.—REVENUE AND EXPENDITURE, 1914 TO 1921.

	Revenue.	Expenditure.
September, 1914, to 31st August, 1915	£39,607 ..	(a)
1st September, 1915, to 30th June, 1916	77,287 ..	(a)
1st July, 1916, to 30th June, 1917	115,559 ..	(a)
1st July, 1917, to 30th June, 1918	139,921 ..	(a)
1st July, 1918, to 30th June, 1919	143,636 ..	167,134(a)
1st July, 1919, to 30th June, 1920	202,158 ..	160,407(a)
1st July, 1920, to 30th June, 1921	193,957 ..	215,315(a)
1st July, 1921, to 30th June, 1922	237,650(b) ..	237,650(b)

(a) The Revenue during these years was applied in maintaining the Government of the country and to the amount of £220,225) in part payment of stores, transport, etc., for the use of the Expeditionary Force which carried on the Government. The pay and allowances of the Force (£661,541) and the balance of the cost of stores, etc. (£254,535), making a total expenditure on military account of £916,076, were defrayed from Commonwealth funds.

(b) Estimate.

8. **Asiatic Population of the South Pacific.**—In the following table is given the number of Asiatics in the South Pacific at various dates :—

NUMBER OF ASIATICS IN THE SOUTH PACIFIC.

Group.	Chinese and Tonkingese.	Japanese.	British Indians.	Malays and Javanese.	Other Asiatics.	Total.
Papua (1921) ..	3	10	(*a*)	60	124	197
Territory of New Guinea (1921) ..	1,200	27	none	160	..	1,387
British Solomon Islands (1913) ..	27	10(*g*)	none	none	none	27
Gilbert and Ellice Island	(*b*)	(*b*)	(*b*)	(*b*)	(*b*)	26(*c*)
Nauru (1921) ..	554	none	none	none	none	554
Ocean Island (1921) ..	375	none	none	none	none	375
Fiji (1918)	913	(*h*)	61,745	(*h*)	(*h*)	..
New Caledonia (1921)	(*b*)	2,100	(*b*)	1,200(*c*)	(*b*)	..
Tahiti and Other French Establishments (1911) ..	3,000(*d*)	346(*e*)	(*b*)	(*b*)	(*b*)	..
New Hebrides (1920)	224	51(*f*)	none	72	none	347
Western Samoa (1920)	838	none	(*b*)	(*b*)	(*b*)	..
Tonga	(*b*)	(*b*)	(*b*)	(*b*)	(*b*)	..
Cook Islands (1920) ..	(*b*)	none	(*b*)	(*b*)	(*b*)	..

(*a*) Not separately enumerated.
(*b*) Information not available (but in most of the cases to which this remark applies there is no reason to suppose there are any of the race in question).
(*c*) In 1911.
(*d*) Estimate by a newspaper correspondent in 1921.
(*e*) Most of these were at the phosphate workings at Makatea, from which all Japanese returned to Japan in 1920.
(*f*) In 1921.
(*g*) In 1920.
(*h*) Not separately enumerated, but included in 637 "others."

9. **Bibliography.**—The following authorities have been consulted in the preparation of the information relating to the Territory of New Guinea in the preceding pages:—

Foreign Office Handbook : "Former German Possessions in the Pacific."

Hans Blum : Neu Pommern und der Bismarck-Archipel : Eine wirtschaftliche Studie. (Berlin, 1900.)

R. Parkinson : "Dreissig Jahre in der Südsee. (Stuttgart, 1907.)

H. Schnee (editor) : "Deutsches Kolonial Lexikon." (Leipzig, 1920.)

Nachrichten über Kaiser Wilhelmsland und der Bismarck-Archipel, 1885–1898.

Die deutschen Schutzgebiete in Afrika und der Südsee. Amtliche Jahresberichte herausgegeben vom Reichs-Kolonialamt.

Amtsblatt für das Schutzgebiet Neuguinea, 1909 to 1st September, 1914.

Government Gazette, British Administration, German New Guinea, continued as Rabaul Gazette, 15th October, 1914, to 7th May, 1921.

New Guinea Gazette, from 9th May, 1921.

British Administration (late) German New Guinea. Statistics relating to Commerce, Native Tax, Population, Live Stock, and Agriculture, etc.; in connexion with the late German New Guinea Possessions, 1915.

Report of the Royal Commission on late German New Guinea. (P.P. No. 29 of 1920.) (Map.)

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NUMBER OF ASIATICS IN THE SOUTH PACIFIC.

Group.	Chinese and Tonkingese.	Japanese.	British Indians.	Malays and Javanese.	Other Asiatics.	Total.
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Territory of New Guinea (1921) ..	1,200	27	none	160	..	1,387
British Solomon Islands (1913) ..	27	10(*g*)	none	none	none	27
Gilbert and Ellice Island	(*b*)	(*b*)	(*b*)	(*b*)	(*b*)	26(c)
Nauru (1921) ..	554	none	none	none	none	554
Ocean Island (1921) ..	375	none	none	none	none	375
Fiji (1918)	913	(*h*)	61,745	(*h*)	(*h*)	..
New Caledonia (1921)	(*b*)	2,100	(*b*)	1,200(*c*)	(*b*)	..
Tahiti and Other French Establishments (1911) ..	3,000(*d*)	346(*e*)	(*b*)	(*b*)	(*b*)	..
New Hebrides (1920)	224	51(*f*)	none	72	none	347
Western Samoa (1920)	838	none	(*b*)	(*b*)	(*b*)	..
Tonga	(*b*)	(*b*)	(*b*)	(*b*)	(*b*)	..
Cook Islands (1920) ..	(*b*)	none	(*b*)	(*b*)	(*b*)	..

(*a*) Not separately enumerated.
(*b*) Information not available (but in most of the cases to which this remark applies there is no reason to suppose there are any of the race in question).
(*c*) In 1911.
(*d*) Estimate by a newspaper correspondent in 1921.
(*e*) Most of these were at the phosphate workings at Makatea, from which all Japanese returned to Japan in 1920.
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Amtsblatt für das Schutzgebiet Neuguinea, 1909 to 1st September, 1914.

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British Administration (late) German New Guinea. Statistics relating to Commerce, Native Tax, Population, Live Stock, and Agriculture, etc., in connexion with the late German New Guinea Possessions, 1915.

Report of the Royal Commission on late German New Guinea. (P.P. No. 29 of 1920.) (Map.)

SECTION XXX.

PUBLIC HYGIENE.

§ 1. Introduction.

1. **General.**—Though the safeguarding of the public health as an organised department of governmental activity is of comparatively modern growth, few branches of administration have expanded more rapidly than the one relating to that subject. The loss of potential wealth incurred through preventable diseases and deaths is of grave concern to the nation, and is a matter which has received an increased amount of attention during the last few years both from the Commonwealth and State Governments and from the Health and other authorities in Australia. Numerous Acts of Parliament have been passed dealing with various aspects of the subject of public hygiene.

§ 2. The Public Health Acts.

1. **General.**—The most important statutes relating generally to the subject of public hygiene are the Commonwealth Quarantine Act and the Health Acts which have been passed in each State. The general trend of public health legislation has been referred to in previous issues of the Official Year-Book (see No. 12, pp. 1050–1).

2. **Commonwealth.**—The Commonwealth Department of Health, which was created on the 3rd March, 1921, and commenced its administration as from the 7th March, 1921, is controlled by the Commonwealth Minister of Health. The Department of Health was formed by the extension and development of the Commonwealth Quarantine Service, the Director of Quarantine becoming the Commonwealth Director-General of Health and Permanent Head of the Department.

The functions of the Department of Health are defined by an Order-in-Council gazetted on the 3rd March, 1921, page 415, as follows :—

- The administration of the Quarantine Act.
- The investigation of causes of disease and death and the establishment and control of laboratories for this purpose. The control of the Commonwealth Serum Laboratories and the commercial distribution of the products manufactured in those laboratories.
- The methods of prevention of disease.
- The collection of sanitary data, and the investigation of all factors affecting health in industries.
- The education of the public in matters of public health.
- The administration of any subsidy made by the Commonwealth with the object of assisting any effort made by any State Government or public authority directed towards the eradication, prevention, or control of any disease.
- The conducting of campaigns of prevention of disease in which more than one State is interested.
- The administrative control of the Australian Institute of Tropical Medicine.
- The administrative control of infectious disease amongst discharged members of the Australian Imperial Forces.
- Generally to inspire and co-ordinate public health measures.
- Any other functions which may be assigned to it.

As a result of the creation of this Department, the Australian Institute of Tropical Medicine at Townsville, and the campaign in connexion with hookworm disease, are now under the control of the Commonwealth Department of Health. The organisation of the Department in respect of other functions is proceeding.

3. **New South Wales.**—The Department of Public Health is controlled by the Minister of Public Health. The Director-General of Public Health is the chief executive officer, and is assisted by various staffs—medical, bacteriological, chemical, veterinary, dairy inspection, meat inspection, sanitary, pure food, and clerical. Briefly put, the work of the Department extends over the whole of the State, and embraces all matters relating to public health and the general medical work of the Government, the Director-General of Public Health holding the position of Chief Medical Officer of the Government as well as being permanent head of the Department.

The Board of Health has certain statutory duties imposed upon it by various Acts of Parliament, and the Director-General is President of the Board. These duties consist largely in supervision of the work of local authorities (Municipal and Shire Councils), so far as that work touches upon public health matters connected with the following Acts :—Public Health Act 1902, Public Health (Amendment) Act 1915, Dairies Supervision Act 1901, Noxious Trades Act 1902, Cattle Slaughtering and Diseased Animals and Meat Act 1902, Pure Food Act 1908, and Private Hospitals Act 1908. The Board further possesses certain powers connected with public health matters under the Local Government Act 1919. The Board of Health is a nominee Board, created in 1881 and incorporated in 1894.

The Director-General of Public Health acts independently of the Board of Health as regards the State hospitals and asylums, and the various public hospitals throughout the State which receive subsidies from the Government.

4. **Victoria.**—In this State the Public Health Acts are administered by a Commission composed of the Chief Health Officer and six members appointed by the Governor-in-Council. The medical and sanitary staffs of the Commission consist of (*a*) the Chief Health Officer, who is also chairman, (*b*) four assistant health officers, (*c*) two engineering inspectors, (*d*) three building inspectors, and (*e*) five health inspectors. The main function of the Commission is to enforce the execution of the Health Acts by the local municipalities, but it has been found advisable to supplement this supervisory function by an active policy of inspection as to the sanitary condition of various districts, and the sampling of articles of food. The supervision of the sanitary condition of milk production is under the Dairy Supervision Branch of the Department of Agriculture, but distribution is supervised by the Commission. Acts administered by the Department of Public Health are :—The Health Acts, in which are now included the Adulteration of Wine Act, the Pure Food Act, the Meat Supervision Act, and the Cemeteries Act, in which is now included the Cremation Act. The Department administers also the Midwives Act, the Goods Act, and the Venereal Diseases Act. Under the last-mentioned Act it has been made compulsory for all persons affected with venereal disease to place themselves under the care of a duly qualified medical practitioner. Persons other than medical practitioners are prohibited from treating these diseases, or from supplying drugs or medicines. Registered pharmaceutical chemists may, however, dispense prescriptions to patients of medical practitioners. The Act contains various sections—with appended penalties for contravention—designed to check the spread of venereal diseases. A special clinic for the treatment of infected persons was opened in Melbourne in June, 1918. Between 17th June, 1918, and 22nd October, 1921, 7,425 males were treated, attendances numbering 259,907. At the same clinic (afternoon clinic for women) during the same period, 581 females were treated, attendances numbering 14,012. It may be mentioned that the Act provides a heavy penalty in the event of a medical practitioner failing to notify cases of these diseases.

5. **Queensland.**—The Public Health Acts 1900 to 1917 are administered by the Commissioner of Public Health under the Home Secretary. The executive staff of the Department includes a health officer, a medical officer for the tuberculosis bureau, two

medical officers for enthetic diseases, fourteen food and sanitary inspectors, one staff nurse, in addition to rat squads in Brisbane. Northern offices, in charge of inspectors, are located at Rockhampton, Townsville, Cairns, and Mackay. A laboratory of microbiology and pathology, in charge of a medical director, is controlled by the Department, and performs a wide range of microbiological work for the assistance of medical practitioners and the Department.

One function of the Department is to stimulate and advise local sanitary authorities on matters pertaining to the Health Acts, and, where necessary, to rectify or compel rectification, at the cost of the local authority, of sanitary evils produced by local inefficiency or apathy. Its powers and responsibilities were widely increased by the Amending Acts of 1911, 1914, and 1917.

Under statutory powers a scheme is in operation for dealing with venereal disease throughout the State. It includes compulsory notification, free treatment, and the free supply of salvarsan and allied remedies at all public hospitals. Compulsory segregation of venereally infective persons of either sex may be effected on occasion.

6. **South Australia.**—The Central Board of Health in South Australia consists of five members, three of whom (including the chairman, who is permanent head of the Department) are appointed by the Governor, while one each is elected by the city and suburban local Boards and the country local Boards. The Health Act 1898 provides that the municipal and district councils are to act as local Boards of Health for their respective districts. There are 183 of these local Boards under the general control and supervision of the Central Board. A chief inspector and two inspectors under the Health and Food and Drugs Acts periodically visit the local districts, and see generally that the Boards are carrying out their duties. There is also a chief inspector of food and drugs (under the Food and Drugs Act 1908), who, in company with an analyst, visits country districts, and takes samples of milk, which are analysed on the spot. There are two nurse inspectors employed in advising and assisting local Boards in connexion with outbreaks of infectious diseases. In the outlying districts there are fifteen inspectors directly responsible to the Board.

7. **Western Australia.**—The legislation in this State is the Health Act 1911, with the amending Acts of 1912 (2), 1915, 1918, and 1919, which have been partly consolidated and reprinted as "The Health Act 1911–18." The central authority is the Department of Public Health, controlled by a Commissioner, who must be a qualified medical practitioner. The local authorities constitute :—(*a*) Municipal Councils, (*b*) Road Boards where the boundaries of a Health District are conterminous with those of a Road District, and (*c*) Local Boards of Health, composed of persons appointed by the Governor for a certain period. These Local Boards are only utilized where neither Municipal Councils nor Road Boards are available. Generally speaking, the Act is administered by the local authorities, but the Commissioner has supervisory powers, also power to compel local authorities to carry out the provisions of the Act. In cases of emergency the Commissioner may exercise all the powers of a local health authority in any part of the State.

All the usual provisions for public health legislation are contained in the Act, and in addition, provision is made for the registration of midwifery nurses, the medical examination of school children, the control of public buildings (*i.e.*, theatres, halls, etc.), the control of food, and the provision of standards therefor.

The amending Act of 1915 deals exclusively with venereal diseases. The main features are :—(1) that none but qualified medical practitioners shall treat these diseases; (2) that all patients shall promptly place themselves under skilled treatment; and (3) that advertisements of medicines and appliances for the treatment of these diseases, of sexual infirmities, etc., shall no longer be published. For the carrying out of these objects, the Act provides, *inter alia* :—(*a*) For the notification (without name and address) of cases to the Commissioner of Public Health; (*b*) for the notification to the Commissioner of patients who discontinue treatment before receiving a certificate of

cure; (c) for the exercise by the Commissioner, in certain circumstances, of compulsory powers against persons who neglect treatment; (d) for the provision of free treatment at hospitals, and at the hands of salaried or subsidised medical practitioners.

A penalty of £50, or imprisonment with hard labour for six months, is provided for any person who knowingly infects any other with any venereal disease, or does anything likely to lead to that result.

The 1918 amending Act includes important amendments to that part of the principal Act dealing with venereal diseases. The general principles remain unaltered, but details are much improved.

8. **Tasmania.**—Under the Director of Public Health Act 1920, the office of Director of Public Health is established, and the person holding the office of Chief Health Officer under the Public Health Act 1903 at the time of the passing of the former Act is the Director of Public Health. He is also the Permanent Head of the Department of Public Health. He is charged with very wide functions and powers, and in the event of the appearance of dangerous infectious disease (small-pox, plague, etc.) in the State, is vested with supreme power, the entire responsibility of dealing with such an outbreak being taken over by him from the local authorities. Local executive is vested in local authorities, who possess all legal requirements for the efficient sanitary regulation of their districts. Controlling and supervisory powers over these bodies are possessed by the Department of Public Health, whereby many of the powers conferred upon them may be converted into positive duties. One function of the Department is to advise local authorities on matters pertaining to the Health Act, and, where necessary, to rectify sanitary evils produced by local inefficiency or apathy. The Department has four full-time inspectors, who assist and instruct the local sanitary inspectors, but full-time district health officers are not provided for. The number of local authorities under the Public Health Act has been reduced to forty-nine since the Local Government Act 1906 came into force. All parts of Tasmania are now furnished with the administrative machinery for local sanitary government.

The Public Health Act 1917 deals with venereal diseases. Medical practitioners are required to report persons suffering from such diseases. Such notification, however, does not disclose the names or addresses of the patients, this information being given to the Department by medical practitioners only if patients fail to consult or attend for a period of six weeks.

Regulations under the Public Health Act 1903, as amended, for checking or preventing the spread of any infectious disease, came into force in February, 1918.

The Places of Public Entertainment Act 1917 is administered by the Director of Public Health under the Minister. This Act provides, *inter alia*, for the licensing and regulation of places of public entertainment, for the appointment of a censor or censors of moving pictures and for the licensing of cinematograph operators. Comprehensive regulations have been framed under the Act. Inspectors under the Public Health Act 1905 are Inspectors of Places of Public Entertainment under this Act.

§ 3. Inspection and Sale of Food and Drugs.

1. **Introduction.**—The importance of securing a pure and wholesome supply of food and drugs is recognised by both the Commonwealth and State Parliaments. Under the Acts referred to later, and the regulations made thereunder, the importation of articles used for food or drink, of medicines, and of other goods enumerated, is prohibited, as also is the export of certain specified articles, unless there is applied to the goods a "trade description" in accordance with the Act. Provision is made for the inspection of all prescribed goods which are imported, or which are entered for export.

2. **Commonwealth Jurisdiction.**—Under Section 51 (i) of the Commonwealth Constitution Act 1900, the Commonwealth Parliament has power to make laws with respect to trade and commerce with other countries and among the States. By virtue of that power, the Commerce (Trade Descriptions) Act 1905, and the Customs Act 1910, to which reference has already been made in another part of this book (see pp. 487, 488), were passed.

3. ***State Jurisdiction.***—The inspection and sale of food and drugs is also dealt with in each State, either under the Health Acts or under Pure Food Acts. There is, in addition, in the several States, a number of Acts dealing with special matters, such as the adulteration of wine and the supervision of meat. The supply and sale of milk are also subject to special regulations or to the provisions of special Acts. A brief statement of the general objects of these Acts appeared in previous issues of the Year Book (see No. 12, p. 1054).

4. **Food and Drug Standardisation.**—Conferences aimed at securing uniformity in these matters were held in Sydney in 1910, and in Melbourne in 1913. The resolutions of the latter conference were submitted to the Premiers' Conference held in Melbourne in March, 1914, and in conformity with the determinations arrived at, each State issued regulations which have had the effect of ensuring uniformity throughout the Commonwealth.

5. **The Sale and Custody of Poisons.**—In Victoria, New South Wales, Western Australia, and Tasmania, the enactments for regulating the sale and use of poisons are administered by the Pharmacy Boards in the respective States. In South Australia, the sale of poisons is provided for by regulations under "The Food and Drugs Act 1908," administered by the Central Board of Health. In Queensland, the sale of poisons is under the control of the Health Department.

In New South Wales and Victoria the Government subsidises the Pharmacy Board, in order to enable it to carry out the provisions of the Poisons Act.

No persons, other than legally qualified medical practitioners and registered pharmaceutical chemists, are permitted to sell poisons without special licence from the bodies administering the legislation in the respective States. These licences are issued to persons in business distant from four to five miles from a registered chemist, on production of certificates from medical practitioners, police, or special magistrates or justices as to the applicant's character and fitness to deal in poisons. Annual licence fees, ranging from 5s. to 40s., are charged in the several States. By a new regulation, made in New South Wales on 17th December, 1920, provision is made for an annual licence fee of 10s. 6d. Prior to this, the Pharmacy Board issued licences free of charge. New poisons regulations were approved in Queensland on 1st April, 1920, amongst which are stringent restrictions on the sale of cyanide of potassium.

The special conditions attaching to the sale of poisons are alluded to on p. 1055 of Official Year Book No. 12.

Partial exemptions from the regulations are made in some States in the case of sales of poisons for agricultural, horticultural and photographic purposes in so far that any person may sell them subject to the restrictions as to the class of container and the manner in which they may be sold. The sale of what are generally known as industrial poisons, such as sulphuric acid, nitric acid, hydrochloric acid, soluble salts of oxalic acid, etc., is governed by regulations, as also is the sale of poisons for the destruction of rats, vermin, etc. Under the existing laws these poisons are allowed, in most of the States, to be sold by any one. The Victorian Parliament, in December, 1920, passed an amending Poisons Act, in which the word "wholesale" has for the first time been defined as meaning "sale or supply for the purposes of re-sale," providing for an annual fee of 10s. and the issuing of licences to dealers in exempted poisons. A new principle is introduced into the Victorian Poisons Act of 1920. Certain drugs are declared to be "potent drugs" and may only be sold by pharmaceutical chemists. These drugs include acetanilid, adrenalin, oil of tansy, pituitary extract, thyroid gland preparations, and any serum or vaccine for human use.

§ 4. Milk Supply and Dairy Supervision.

1. **General.**—In Official Year Book No. 12 and preceding issues allusion is made in general terms to the legislation in force in the various States to ensure the purity of the milk supply and of dairy produce generally, but limits of space preclude the repetition of this information in the present issue.

2. **Number of Dairy Premises Registered.**—The following table shews so far as the particulars are available the number of dairy premises registered and the number of cattle thereon. Compulsory registration is not in force throughout the whole area of the various States. The figures do not include unregistered dairies.

DAIRY PREMISES REGISTERED AND CATTLE THEREON, 1920.

Particulars.	N.S.W.	Victoria.	Q'land. (a)	S. Aust.	W. Aust.	Tasmania.
Premises registered ..	18,502	16,417	12,973	1,242	975	(b)
Cattle thereon ..	729,317	157,345	(b)	7,750	10,280	(b)

(a) For year 1919–20. (b) Not available.

3. **New South Wales.**—The provisions of the Dairies Supervision Act 1901 extend to the whole of the Eastern and Central Divisions of this State and to all important dairying districts further inland. Other districts are brought under the operation of the Act by proclamation from time to time. Every dairyman, milk vendor, and dairy factory or creamery proprietor is required, under penalty, to apply for registration to the local authority for the district in which he resides, and also to the local authority of every other district in which he trades. Registrations must be applied for before commencing to trade and must be renewed annually. The Chief Dairy Inspector is in charge of all inspectorial work under the Dairies Supervision Act 1901, and has assisting him fourteen qualified dairy inspectors, each in charge of a district. During 1919, samples of milk numbering 3,502, and of food and drugs numbering 822, were taken from the vendors for examination, and 10,717 dairy premises were inspected. Where necessary, warnings and prosecutions followed. A sum of nearly £2,000 was imposed in fines for adulteration, want of cleanliness, etc.

4. **Victoria.**—The inspection and supervision in Victoria of dairies, dairy farms, dairy produce, milk stores, milk shops, milk vessels, dairy cattle and grazing grounds are provided for by the Dairy Supervision Act 1915, administered by the Minister of Agriculture. Under the Health Act, however, the Department of Public Health is empowered to take samples of food (including milk, cream, butter, cheese, and other dairy products) for examination or analysis, and to institute prosecutions in case of adulterated or unwholesome food. By the end of the year 1920, 117 municipal districts, comprising about one-third of the area of the State, had been brought under the operation of the Dairy Supervision Act. The municipal councils have the option of carrying out the execution of the Act themselves or of electing for execution by the Department of Agriculture; up to the present all the municipalities in which the Act has been proclaimed have elected for Departmental execution.

5. **Queensland.**—The control and supervision of the milk supply and of dairies and the manufacture, sale, and export of dairy produce in Queensland are provided for by the Dairy Produce Act 1920, administered by the Department of Agriculture and Stock. These Acts and the regulations made thereunder apply only to prescribed districts, which comprise the whole of the coastal district from Rockhampton down to the New South Wales border, and the Darling Downs, Maranoa, Mackay, and Cairns districts.

6. **South Australia.**—The Food and Drugs Act 1908, and the Regulations made thereunder, provide for the licensing of vendors of milk and the registration of dairies, milk stores and milk shops. The Metropolitan County Board carries out the requirements of the metropolitan area. In the Country, the majority of local authorities have not made statutory provision for the licensing of vendors of milk and the registration of dairy premises; and, in consequence, the Central Board of Health provides for such under the Act.

7. *Western Australia.*—Control of dairies throughout the State is in the hands of the Public Health authorities under the provisions of the Health Act. The inspectors under the Act supervise the sanitary condition of the premises, the examination of herds being carried out by officers of the Department of Agriculture for the Health Department. Inspection of herds is made at regular intervals, and the tuberculin test is applied in cases of suspected disease.

8. **Tasmania.**—Local authorities are responsible for the dairies in their respective districts. By-laws for the registration and regulation of dairies have been drafted by the Public Health Department, and in the majority of cases have been adopted by the local authorities. By the Food and Drug Act, which came into force March, 1911, milk sampling is carried out by the local authorities. During 1913, attention was drawn by circular to the requirements of local authorities with regard to dairies, and a special report is now required before licences are granted. An Act also provides for the registration and inspection of dairies and other premises where dairy produce is prepared, and regulates the manufacture, sale, and export of dairy produce.

§ 5. Prevention of Infectious and Contagious Diseases.

1. **General.**—The provisions of the various Acts as to precautions against the spread and the compulsory notification of infectious diseases may be conveniently dealt with under the headings—(*a*) Quarantine; (*b*) Notifiable Diseases; and (*c*) Vaccination.

2. *Quarantine.**—Under the Commonwealth Quarantine Act 1908, the systems of State quarantine formerly in operation were abolished, and a branch of the Department of Trade and Customs, under the immediate control of a Director of Quarantine, was created on 1st July, 1909. Amending Quarantine Acts were passed in 1912, 1915, and 1920, correcting certain imperfections in the original Act, and conferring additional powers. The Quarantine Act is now administered by the Commonwealth Department of Health, which came into being on the 7th March, 1921, the Director of Quarantine becoming the Director-General of Health. Uniformity of procedure has been established throughout the Commonwealth in respect of all vessels, persons, and goods arriving from oversea ports or proceeding from one State to another, and in respect of all animals and plants brought from any place outside Australia. In regard to interstate movements of animals and plants, the Act becomes operative only if the Governor-General be of opinion that Federal action is necessary for the protection of any State or States; in the meantime the administration of inter-state quarantine of animals and plants is left in the hands of the States.

(i) *Transfer of Quarantine Stations.* The transfer from the States to the Commonwealth of the quarantine stations, for the purposes of human quarantine, at the following places, has been effected :—(*a*) *New South Wales.* North Head (near Sydney). (*b*) *Victoria.* Point Nepean (near Melbourne). (*c*) *Queensland.* Colmslie and Lytton (near Brisbane), and Thursday Island. (*d*) *South Australia.* Torrens Island (near Adelaide). (*e*) *Western Australia.* Woodman's Point (near Fremantle), Albany, and Broome. (*f*) *Tasmania.* Bruni Island (near Hobart). Animal quarantine stations in each of the States have also been transferred to the Commonwealth. New buildings

* From information furnished by the Commonwealth Director-General of Health.

and improvements are in course of construction at several of the transferred stations. New stations have been constructed at Darwin, Thursday Island, Townsville, and Bunbury.

(ii) *Administration of Act.* The administration of the Act in respect of the general division, *i.e.*, vessels, persons, and goods, and human diseases, is under the direct control of the Commonwealth in all States except Tasmania. A medical chief quarantine officer, with assistant quarantine officers, has been appointed in each State. This officer is charged with responsible duties, and is under the control of the Director-General of Health. In Tasmania, the chief health officer of the State acts as chief quarantine officer, and payment is made to the State for his services. The administration of the Act in the Northern Territory has been combined with that of Queensland under the chief quarantine officer for the North-eastern Division. The administration of the Acts and Regulations relating to oversea animal and plant inspection and quarantine is carried out by the officers of the State Agricultural Departments acting as quarantine officers.

(iii) *Chief Provisions of Act.* The Act provides for the inspection of all vessels including air-vessels, from oversea, for the quarantine, isolation, or continued surveillance of infected or suspected vessels, persons, and goods, and for the quarantining and, if considered necessary, the destruction of imported goods, animals, and plants. The obligations of masters, owners, and medical officers of vessels are defined, and penalties for breaches of the law are prescribed. Power is given to the Governor-General to take action in regard to various matters by proclamation, and to make regulations to give effect to the provisions of the Act. Quarantinable diseases are defined as small-pox, plague, cholera, yellow fever, typhus fever, leprosy, or any other disease declared by the Governor-General, by proclamation, to be quarantinable. "Vessel" is defined as "any ship, boat or other description of vessel or vehicle used in navigation by sea or air." "Disease" in relation to animals means certain specified diseases, or "any disease declared by the Governor-General, by proclamation, to be a disease affecting animals." "Disease" in relation to plants means "any disease or pest declared by the Governor-General, by proclamation, to be a disease affecting plants." The term "plants" is defined as meaning "trees or plants, and includes cuttings and slips of trees and plants and all live parts of trees or plants and fruit."

(iv) *Proclamations.* The proclamations so far issued specify the diseases to be regarded as diseases affecting animals and plants; appoint first ports of landing for imported animals and plants and first ports of entry for oversea vessels; declare certain places beyond Australia to be places infected, or as places to be regarded as infected with plague; prohibit the importation (*a*) of certain noxious insects, pests, diseases, germs, or agents, (*b*) of certain goods likely to act as fomites, and (*c*) of certain animals and plants from any or from certain parts of the world; fix the quarantine lines, and define mooring grounds, in certain ports of Australia.

(v) *General.* At present, instead of all oversea vessels being examined in every State, as was formerly the case, those arriving from the south and west are now examined only at the first port of call, and pratique is given for the whole of the Commonwealth, except in cases of suspicious circumstances, while vessels arriving from the northern routes are examined only at the first and last ports. It is expected that the restrictions placed upon oversea vessels will be further removed as the machinery of quarantine is improved. The present freedom from certain diseases which are endemic in other parts of the world would, however, appear to justify the Commonwealth in adopting precautionary measures not perhaps warranted in the already infected countries of the old world.

3. Notifiable Diseases.—Provision exists in the Health Acts of all the States for precautions against the spread and for the compulsory notification of infectious diseases. When any such disease occurs, the Health Department and the local authorities must at once be notified. In some States notification need only be made to the latter body. The duty of giving this notification is generally imposed, first, on the head of the house to which the patient belongs, failing whom on the nearest relative present, and on his default on the person in charge of or in attendance on the patient, and on his default on the occupier of the building. Any medical practitioner visiting the patient is also bound to give notice.

(i) *Notifiable Diseases Prescribed in each State.* In the following statement those diseases which are notifiable in each State are indicated by a cross :—

DISEASES NOTIFIABLE UNDER THE HEALTH ACTS IN EACH STATE.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.(d)	Tas.(e)
Acute lobar pneumonia ..	..	..	..	(g)	+	..
Anthrax	..	+	..	+	..	..
Ankylostomiasis	..	+	+	..	..	..
Beri-beri	..	..	..	..	+	..
Bilharziasis	..	+	+	+	+	+
Bubonic plague	+	+	+	+	+	+
Cerebro-spinal fever	+	+	+	+	..	..
Cerebro-spinal meningitis ..	+	+	+	+	+	+
Chancroid (soft chancre) ..	..	+(b)	+	..	+	+
Cholera	..	+	+	+	+	+
Continued fever	..	+	+	..	+	..
Diphtheria	+	+	+	+	+	+
Dysentery	..	..	+(c)	..	+	..
Enteric fever	+	+	+	+	+	+
Erysipelas	..	..	+	+	+	..
Favus	..	..	..	+	..	..
Gonorrhœa	..	+(b)	+	..	+	+
Hæmaturia	..	+	+	..	+	+
Infantile paralysis	+	+	+	..	+	+
Infective granuloma of the pudenda	..	+(b)	+	..	+	..
Influenza	..	..	+(h)	+(g)	+	..
Leprosy	+	+	+	+	+	+
Malarial fever	..	+	+	+	+	+
Measles	..	..	..	+	..	..
Membranous croup	+	+	+	+	+	..
Ophthalmia neonatorum ..	..	+(b)	..	..	+	+
Pneumonic influenza	..	..	+(h)	+(g)	+	+
Poliomyelitis anterior acuta ..	+	+	+	..	+	+
Puerperal fever	..	+	+	+	+	+
Pulmonary tuberculosis (phthisis)	+(a)	+	+	+	+	+
Relapsing fever	..	..	+	+	+	..
Scarlet fever	+	+	+	+	+	+
Scarlatina	+	+	+	+	+	+
Septicæmia	..	+	..	..	+	..
Small-pox	+	+	+	+	+	+(f)
Syphilis	..	+(b)	+(i)	..	+	+
Trichinosis	..	..	..	+	..	..
Tuberculosis in Animals ..	..	..	..	+	..	..
Typhoid	+	+	+	+	+	+
Typhus fever	..	+	+	+	+	+
Venereal Warts	..	..	+	..	..	..
Whooping cough	..	..	..	+	..	..
Yellow fever	..	+	+	+	+	..

(a) In metropolitan and certain proclaimed districts. (b) Under the Venereal Diseases Acts. (c) Thursday Island area only. (d) Other diseases enumerated as notifiable under "The Health Act 1911" of this State are pyæmia, and Malta, dengue, low and Colonial fevers. (e) Venereal diseases are notifiable under "The Public Health Act 1917." (f) Chicken-pox has been declared a notifiable disease to render certain its differential diagnosis from small-pox. (g) In South Australia influenza vera is notifiable, and any febrile toxic-septicæmic condition similar to influenza, including pneumonic influenza. (h) Notifiable in certain cases only. (i) Primary and secondary stages only.

(ii) *Duties of Authorities.* As a rule the local authorities are required to report from time to time to the Central Board of Health in each State as to the health, cleanliness, and general sanitary state of their several districts, and must report the appearance of certain diseases. Regulations are prescribed for the disinfection and cleansing of premises, and for the disinfection and destruction of bedding, clothing, or other articles which have been exposed to infection. Bacteriological examinations for the detection of

plague, diphtheria, tuberculosis, typhoid, and other infectious diseases within the meaning of the Health Acts are continually being carried out. Regulations are provided in most of the States for the treatment and custody of persons suffering from certain dangerous infectious diseases, such as small-pox and leprosy.

(iii) *New South Wales.* The proclamation and notification of infectious diseases are dealt with in Part III. of the Public Health Act 1902. Special provision is made by that Act for the notification of small-pox and leprosy, and for the custody and treatment of lepers. Special reports dealing with outbreaks and the ætiology of plague, leprosy, and small-pox have been published.

(iv) *Victoria.* Any infectious disease declared to be notifiable is notifiable throughout the State (Health Act 1919).

(v) *Queensland.* Under Part VII. of the Health Act 1900–1917, all cases of infectious diseases must be notified; special provision is made for notification of small-pox. Provision is made for the diagnosis of leprosy, and lepers are sent to Peel Island, Moreton Bay.

(vi) *South Australia.* In this State cases of infectious diseases must be reported to the local Board, under the provisions of Part VIII. of the Health Act 1898. The onus of notification is placed primarily on the head of the family, and, failing him, the nearest relative, the person in charge, or the occupier of the house; in any case, notification must be given by the medical practitioner attending.

(vii) *Western Australia.* The necessity for providing hospital treatment for infectious cases has been recognised by the Local Health authorities, and in several instances wards for the treatment of these cases have been erected.

(viii) *Tasmania.* Provisions regarding the prevention and notification of infectious diseases are contained in the Public Health Act 1903 and amending Acts.

4. Vaccination.—In the State of New South Wales there is no statutory provision for compulsory vaccination, though in all the other States of the Commonwealth such provision has been made. Jennerian vaccine for vaccination against small-pox is prepared at the Commonwealth serum laboratories in Melbourne. A considerable demand exists for the vaccine in the State of Victoria, but in the other States the normal requirements are small. During the years 1912, 1913, and 1914, the output of the vaccine in doses from the depot was respectively 65,000, 570,000, and 146,000. The number of doses issued in 1913 was, however, abnormal, and was due to the epidemic of small-pox which broke out in Sydney at the end of June, this being followed by large numbers of vaccinations in each State.

The following table shews, so far as particulars are available, the number of persons vaccinated in each State from 1915 to 1920 inclusive :—

NUMBER OF PERSONS VACCINATED IN EACH STATE, 1915 TO 1920.

Year.	N.S.W.(a)	Victoria.(b)	Q'land.	S. Aust.	W. Aust.	Tasmania.
1915	4,080(d)	24,186	58(e)	854	(c)	(c)
1916	2,618	20,916	(c)	531	(c)	(c)
1917	4,663	19,759	(c)	251	(c)	(c)
1918	(c)	15,306	(c)	36	(c)	(c)
1919	324	14,031	(c)	8	(c)	(c)
1920	377	4,327	(c)	20	(c)	(c)

(a) By officers of the Health Department and at public depots. (b) Children only, who were vaccinated under the Act, see (ii) below. (c) Returns not available. (d) Exclusive of the military. (e) At Health Department, Brisbane.

(i) *New South Wales.* Although there is no provision for compulsory vaccination in this State, public vaccinators have been appointed. No statistics are available as to the proportion of the population who have been vaccinated, but a report of the Principal Medical Officer of the Education Department states that out of 55,740 children medically examined during 1919, 9,487, or 17 per cent., had been vaccinated.

(ii) *Victoria.* Compulsory vaccination, subject to a "conscience" clause, is enforced throughout the State, under Part VII. of the Health Act 1919. From the year 1873 up to 31st December, 1918, it is estimated that 72 per cent. of the children whose births were registered were vaccinated. Free lymph is provided. The number of children vaccinated in Victoria during 1920 was 4,327.

(iii) *Queensland.* Although compulsory vaccination is provided for in this State under Part VII. of the Health Act 1900–1917, its operation has not been proclaimed. Vaccination thus being purely voluntary, medical practitioners do not notify vaccinations. In the early part of 1912, the Queensland Government sent a medical expedition to the islands in Torres Straits. Over 1,200 natives were vaccinated with a view to reducing the risk of the introduction of small-pox from New Guinea. Information as to vaccinations in recent years is not available.

(iv) *South Australia.* The Vaccination Act 1882, which applies to South Australia and the Northern Territory, is administered by the vaccination officer of the State. Under this Act vaccination was compulsory, but in 1917 an Act to abolish compulsory vaccination was passed. The total number of vaccinations in 1920 was 20.

(v) *Western Australia.* In this State vaccination is compulsory under the Vaccination Act 1878, which, however, remains almost a dead letter, seeing that under the Health Act 1911, a "conscientious objection" clause was inserted, which is availed of by the majority of parents. The number of children vaccinated is very small. All district medical officers are public vaccinators, but they receive no fee for vaccinations.

(vi) *Tasmania.* All infants in Tasmania are nominally required, under the Vaccination Act 1898, to be vaccinated before the age of 12 months, unless either (*a*) a statutory declaration of conscientious objection is made, or (*b*) a medical certificate of unfitness is received. Information in regard to vaccinations in recent years is not available.

5. **Commonwealth Serum Laboratories.**—The establishment for the preparation of Jennerian Vaccine situated at Royal Park, near Melbourne (formerly known as the "Calf Lymph Depot"), has been enlarged and extended. The institution is now designated the "Commonwealth Serum Laboratories," and forms a branch of the Commonwealth Department of Health. The list of bacteriological preparations produced by the Laboratories has been extended so as to cover practically the whole range of biological products, and the institution is now a valuable national provision for the protection of public health and for the treatment of human and animal diseases. Price lists of the various products have been issued, and the institution is in full working order.

6. **Malaria and Bilharzia.**—The Defence and Repatriation Departments have jointly requested, the Commonwealth Department of Health to undertake the control of returned soldiers suffering from malaria and bilharzia after their return to civil life. By arrangement with the various State Health Departments, a scheme is now in active operation for the control of the infectivity of men suffering from these diseases, and, as a result of the success obtained in Egypt in the treatment of bilharzia by tartar emetic, arrangements have now been made for cases of this disease to be taken into hospital and treated by this method until a cure is effected.

7. **Venereal Diseases.**—The Commonwealth, recognising the importance of effective control of venereal diseases, has provided a subsidy of £15,000 per annum to the various States to assist in the work of providing hospital treatment for, and administrative control of, venereal diseases, the supervision of this work in so far as it relates to the expenditure of this subsidy being controlled by the Commonwealth Department of Health.

§ 6. Tropical Diseases.

1. **Introduction.**—The remarkable development of parasitology in recent years and the increase in knowledge of the part played by parasites in human and animal diseases have shewn that the difficulties in the way of tropical colonisation, in so far as these arise from the prevalence of diseases characteristic of tropical countries, are largely removable by preventive and remedial measures. Malaria and other tropical diseases are coming more and more under control, and the improvements in hygiene which science has accomplished lend an entirely new aspect to the question of white settlement in countries formerly regarded as unsuitable for colonisation by European races. In Australia the most important aspect of this matter is at present in relation to such diseases as filariasis, malaria, and dengue fever, which, although practically unknown in the southern States, occur in many of the tropical and sub-tropical parts of the Commonwealth.

2. **Queensland.**—(i) *Transmission of Disease by Mosquitoes.* The existence of filariasis in Queensland was first discovered about thirty-six years ago. The parasite of this disease (and probably of dengue fever also), is transmitted by *Culex fatigans*, the mosquito most prevalent in Queensland. The *Stegomyia fasciata*, conveyer of yellow fever, is another common domestic mosquito throughout Eastern Queensland during the summer, but so far has never been infected from abroad. Occasional limited outbreaks of malaria occur in the northern parts of the State; one at Kidston, in 1910, resulted in 24 deaths. The infection was traced to newcomers from New Guinea. Allusion to the efforts made to deal with the mosquito, under the Health Act of 1911, will be found in Official Year Book No. 12, p. 1063. By an Order in Council the Local Authorities are now responsible for the taking of measures for the destruction, and the prevention of breeding, of mosquitoes.

(ii) *Australian Hookworm Campaign.* The study and control of hookworm (*Ankylostoma duodenale* and *Necator americanus*) on a large scale in Australia and its dependencies began in Papua. The Commonwealth of Australia in 1916 invited the International Health Board of the Rockefeller Foundation to make a hookworm survey of Papua, and Dr. J. H. Waite, of the staff of the Board, was sent to conduct the investigation. Between 1st June and 1st September, 1917, 1,190 natives were examined, and 598, or 50.3 per cent., were found to be infected with hookworm. Among natives who had come recently from the villages the infection rate was 8.7 per cent., and among plantation labourers it was 63.1 per cent. This led to the conclusion that hookworm infection was being spread by the plantations, and that control measures were needed.

The work in Papua stimulated the interest in the situation in Queensland, where cases of hookworm disease had been reported in the medical literature since 1889. In 1918 a hookworm campaign was undertaken jointly by the State of Queensland and the International Health Board under the direction of Dr. Waite. The prevalence of hookworm disease and its effects in retarding growth and development were found to be greater than had been supposed. The mental retardation in heavily infected children was found to increase with age as follows :—

Age last birthday	10	11	12	13	14	15
Retardation in years	1.6	2.2	2.5	3.2	3.5	4.5

In the case of children, growth and development took place in a remarkable way as soon as a cure was effected. It was found that the disease was responsible for anæmia, dwarfing, retardation—physical and mental—and delay of sexual maturity.

In 1919 the direction of the work in Queensland was taken over by Dr. W. A. Sawyer, and on 1st October, 1919, there was begun the Australian Hookworm Campaign. The cost is to be borne jointly by the Commonwealth of Australia, the State of Queensland, the International Health Board, and other States and territories in which it is intended to conduct investigations.

Between 1st June, 1917, and 31st March, 1920, examinations have been made in Queensland, under the several projects, as follows :—

People listed in special census	48,152
Examined for hookworm disease	42,441
Found to be infected with hookworms	6,416 (15.1 %)
Treated	6,873 (a)
Found to be cured, on re-examination	2,293

(a) Including approximately 700 aboriginals treated without previous examination, on account of the high infection rate among them.

The number of cures will be greatly increased as the work of re-examining and treating is continued.

On 31st March, 1920, intensive work was in progress in districts with head-quarters at Ayr, Bowen, Mackay, and Nambour, in Queensland. Work had previously been done in the coastal region of Queensland from Cooktown to Townsville.

Surveys of South Australia, Victoria and Tasmania, which were carried out during the year 1920, show that these States are free from the disease.

It is proposed to extend the work of the Hookworm Campaign by attacking in association with the new Commonwealth Department of Health the problems of malaria and filaria.

(iii) *Institute of Tropical Medicine, Townsville.* The Australian Institute of Tropical Medicine was founded at Townsville in January, 1910. Since 7th March, 1921, the Institute has been administered by the newly created Commonwealth Department of Health. During the first two years after its establishment the Institute was subsidised by the Commonwealth and Queensland State Governments, and was controlled by a committee consisting of representatives of both Governments and of the three Australian Universities—Sydney, Melbourne, and Adelaide. A director was appointed to organise the activities of the Institute, and after having accomplished a survey of Northern Australia and New Guinea, to advise as to the best centre where the work could be carried out most expeditiously. The staff consisted at first of the director and one laboratory assistant, but soon the necessity arose of appointing an entomologist. In 1913, after two years of preliminary work, the Commonwealth decided to increase considerably the grant to the Institute, and to take over the financial administration, which was vested in the Department of External Affairs, and later in the Home and Territories Department. The representatives of the three universities were retained as scientific advisers. The decision to increase the scope of the Institute was greatly influenced by a resolution passed by the Australasian Medical Congress in Sydney in 1911, recommending an organised inquiry into the various aspects likely to affect the establishment of a working white race in Australia. The increased subsidy made the appointment of a larger staff possible. The services of three qualified assistants were secured, and the Institute was housed in a ferro-concrete building, situated within the precincts of the Townsville Hospital. During the first two years a survey of tropical diseases existent in North Queensland was carried out; the incidence of human and animal parasites was investigated; and a number of problems which required elucidation were attacked. Amongst other suggestions a hookworm survey of Cairns and surrounding districts was recommended. The staff undertook research on "nodules in beef" and made an important discovery, which at first seemed destined to advance our knowledge, by proving that living larvæ could penetrate through the unbroken skin of the beast and could be found under special conditions on the surface. Research in the consequent fate of the larvæ and the search for an intermediary host, in which the larvæ could undergo further development, proved fruitless, although many possibilities, such as biting flies, aquatic insects, etc., were considered and excluded after patient research. It was shown that the parasites of wild animals, such as reptiles, birds, and small mammals resembled on the whole those found and described from other parts of the tropics, but no new general features of any importance could be discovered. Attention was drawn to the prevalence in the dry western parts of North Queensland of keratosis, a skin disease, characterised by a thickening of the horny layer of the skin, which

develops into a chronic ulcer, and is apt to give rise to skin cancers. The occurrence of similar conditions in old people with atrophic skin in other parts of the world has been well known, but in Queensland mostly young people become affected, and the condition has been attributed to the effect of sunlight and dry heat on a skin lacking in normal pigment. In the Torres Strait islands, the occurrence and prevalence of such diseases as malaria, filariasis, elephantiasis, yaws and others has been noted. The increase in the staff made more extended field work possible, and in the course of time different districts were visited in order to study the local prevalence of fever and disease. A survey of the whole of the coastal districts of British New Guinea was undertaken and yielded interesting results. The prevalence of the different types of malaria, of filariasis and of leprosy was mapped out, the existence of agchylostomiasis (caused by the American variety of the hookworm, which is widely distributed in the far East) was noted, and the occurrence of a number of hitherto undescribed diseases was observed. Amongst other diseases, a number of cases of gangosa, a condition that occurs not infrequently in some of the Pacific Islands, was encountered, and in the earliest stages of the disease a parasite was discovered which belongs to the genus of Blastomyces and was named Cryptococcus mutilans, on account of the mutilation brought about by it. The etiology of chronic conjunctival affections, so prevalent in Western Queensland, was investigated, and it was proved that true trachoma existed in Western Queensland and that an acute conjunctivitis was the most important predisposing cause. The epidemiology and parasitology of the so-called "Mossman fever" were investigated, and it was found that the disease could be transmitted by direct inoculation of blood of patients in the early stage of the disease into monkeys. This observation indicated that this fever can be separated from other fevers which cannot be transmitted to these experimental animals. A survey of the tropical diseases amongst the Europeans and aborigines of the Northern Territory was undertaken, and with the exception of yaws and ulcerative granuloma, the comparative absence of any serious tropical disease was established. Malarial fever was almost entirely absent amongst the aboriginal population and, except in a few localities, rarely attacked the European population. Unfortunately the outbreak of the war greatly curtailed the activities of the Institute. The energy of several of the workers was directed towards duties directly connected with the war, and the staff was obliged to assist as far as possible in relieving the tension caused by the scarcity of medical men throughout North Queensland and Australia in general. Prior to the outbreak of the war the staff of the Institute had embarked on an enquiry on a larger scale into the physiological changes of a white race living under such climatic conditions as prevail in the coastal districts of tropical Australia. Special attention was paid to the blood conditions of the white population, to the metabolism and to the influence of exercise, in order to gain an insight into the effects of manual labour upon the human organism under tropical conditions. At the same time the economic conditions as expressed in statistics were studied, and information collected in order to ascertain whether climatic conditions could be held responsible for any alterations of social conditions in North Queensland. An examination of the blood condition of school children, who had resided during the whole or most of their lives in Townsville, was carried out in order to obtain definite evidence whether any deterioration had taken place, in other words whether there existed amongst the North Queensland school children an anæmia which could be directly attributed to climatic conditions. The result of the investigation proved that the blood condition, as far as formed elements and colouring matter were concerned, did not differ in any way from that considered as normal in children born and bred in a temperate climate. In one respect, however, namely, in the relative preponderance of a certain type of cells—neutrophile leucocytes with a comparatively small number of nuclei—a definite alteration could be ascertained; the significance of this discovery is not yet clear. A biochemical investigation into the metabolism of a white race living in the Tropics was undertaken by estimating the different excretory substances in the urine of a number of subjects who had lived for some time in the tropics, and only quantitative variations from the averages obtained in temperate climates have been found. An extensive inquiry into the body temperature of a number of subjects under varying conditions has been carried out, and it was shown that during complete rest the rectal temperature did not show any variations from the limits of those observed in Europe, but a considerable rise was produced by slight muscular work, which rise was maintained for some time after the work had ceased. Further experiments into the gaseous

metabolism, the mechanism of sweating, the influence of extreme wet bulb temperatures, etc., have been, and are still being carried out, and will in time furnish definite figures and facts in connexion with the solution of the question of the adaptation of a European race to conditions obtaining in the coastal districts of North Queensland. Researches have been carried out into diseases prevalent in North Queensland such as malaria, sprue, filariasis and others. A malarial survey of Cairns and the Innisfail district has been accomplished, and in the former case definite proposals have been submitted which when carried out faithfully would minimise the incidence of this infection. The staff of the Institute has also taken an active part in the hookworm campaign, undertaken by the Rockefeller Institute. A great deal of work has been done on the parasitic worms of men and beasts, and a great number of genera and species new to science have been described in various publications. General research has not been neglected, and a number of publications dealing with different subjects have been issued by the staff of the Institute. The entomological department has carried out a survey of mosquitoes and biting flies in Northern Australia and parts of British New Guinea. A special journey was made by the entomologist to the irrigation areas of New South Wales and Victoria, in order to ascertain the distribution of anophelines, to which genus the malaria-transmitting mosquito belongs. The purpose of this survey was to advise as to whether the settlement of malaria-infected returned soldiers in these areas would form a menace by setting up conditions for the spread of this disease. Prior to the outbreak of war definite arrangements had been made to hold annually a course in tropical medicine and parasitology, but war conditions made the course impossible. In connexion with the Institute, the Townsville Hospital has set aside two wards containing twenty beds, which are under the direct control of the staff of the Institute, and are reserved for patients suffering from tropical complaints. Since their establishment, a number of cases have been admitted, treated, and their complaints investigated; amongst others, a number of returned soldiers and sailors suffering from a severe form of malarial fever were sent to the Institute for observation and treatment. The results of the work of the Institute were published at first in the form of an annual report, but later in various scientific journals, and have been re-issued from time to time in the form of "Collected Papers," which contain a variety of scientific investigations. The equipment has lately been perfected by installing electric power and by providing additional accommodation for the breeding of small experimental animals, which are indispensable for the carrying out of scientific research. An extensive library on tropical medicine and other allied subjects has been collected since the inception of the Institute. The Institute extends hospitality to qualified workers who desire to investigate tropical disease or any problems in connexion with Northern Australia, and room and equipment are provided.

Further investigation on the effects of work under tropical conditions has been carried out on wharf lumpers working ships' cargo in the holds of vessels in Townsville during the summer months. These were controlled by readings of the dry and wet bulb thermometers and the katathermometer, both in the holds of ships and on the wharf, and at the same time rectal temperatures, blood pressure and pulse rate were taken. This investigation showed that climate has practically no effect on working men in the tropics. Further work on blood conditions in reference to the neutrophile leucocytes was carried out, this time on hookworm-infected children, and the results show that this infection has a definite effect in the blood formation and destruction. Work on the transmission of the dog filaria (*Dirofilaria immitis*) has been carried out, and it has been shown that dog fleas, as well as mosquitoes, are capable of acting as intermediate hosts. An extensive statistical inquiry into prevalence of diseases, birth rates and death rates in Queensland in comparison with Victoria and Tasmania was undertaken, and the result shows that Queensland is not more unhealthy than the southern parts of the continent. An examination of faeces from a number of healthy individuals showed that there are a considerable number of carriers of *Entamoeba histolytica* (the dysentery amoeba) in North Queensland; although there is practically no evidence that they cause disease, the findings are on the whole the same as in England. In the Entomological Department, considerable work has been done in extending knowledge of the distribution and breeding habits of mosquitoes and March flies. A physiologist was appointed, and took up his duties in September. He has begun work on the effects of the climate on apparently healthy individuals in regard to metabolism, but has not yet had time to publish any

3. Northern Territory.—While the Territory is conspicuously free from most of the diseases which cause such devastation in other tropical countries, a slight amount of malaria exists, and, although such cases as occur very rarely end fatally, the Administration is taking measures for the destruction of mosquito larvæ wherever settlements or permanent camps are formed, while precautions are being taken to prevent the collection of stagnant water in such localities.

4. Other States.—In Western Australia it is stated that malaria is not known to exist south of the 20th parallel, while filariasis has never been discovered. Mosquito-borne diseases are unknown in Victoria, South Australia, or Tasmania, and it is stated that filariasis is uncommon in New South Wales, the only cases known being imported ones. Kerosene and petroleum have been successfully used to destroy mosquitoes at various places in these States, both by municipalities and private individuals.

§ 7. Supervision of Infant Life.

Reference has been made in general terms in preceding issues of the Official Year Book to the activities of the States in this direction (see No. 12, p. 1067).

The number of infantile deaths and the rates of infantile mortality in each State are dealt with in Section V. of this volume (see page 115), and it will be convenient to shew here particulars for the year 1920, classified according to metropolitan and other districts in each State.

INFANTILE DEATHS AND RATES OF INFANTILE MORTALITY FOR METROPOLITAN AND OTHER DISTRICTS, 1920.

Districts.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth. (b)
			NUMBER OF INFANTILE DEATHS.				
Metropolitan	1,693	1,616	446	459	321	120	4,655
Other	2,051	1,053	835	351	217	256	4,763
			RATE OF INFANTILE MORTALITY. (a)				
Metropolitan	74.03	83.82	70.39	74.57	76.14	74.81	76.99
Other	66.01	62.18	59.98	59.77	55.17	61.89	62.78

(a) *i.e.*, the number of deaths of infants under one year of age per thousand births.
(b) Exclusive of Territories.

It will be seen that in each State the rates of mortality are higher in the metropolitan than in other districts. The causes of "preventable" deaths may generally be attributed to milk poisoning, want of knowledge on the part of mothers, inability to nurse, and lack of the necessary medical facilities.

The figures in the foregoing table do not, however, completely represent the hygienic aspect of the question. For every infant death recorded there are probably three or four survivors who have sustained more or less serious permanent physical damage, quite apart from injuries at birth or congenital causes. It is stated that the far-reaching influence of the first year or two of life upon the whole subsequent physical welfare of the individual cannot be recognised too clearly, and it has been alleged that many serious defects and diseases occurring in later life may be credited to results ensuing from infantile disease. This is particularly the case in respect of digestive diseases.

In previous issues a short account has been given of the principal Acts which have been passed in each State dealing with the subject of child-life, and of the principal functions of the States' Children's Departments. (See Year Book No. 6, p. 1011).

§ 8. Medical Inspection of School Children.

1. **General.**—Reference to early efforts in the direction of securing an adequate physical record of school children will be found in Official Year Book No. 12, pages 1068–9, while Official Year Book No. 11, pages 1203 *et seq.* contains an account of the anthropometric records taken in connexion with military trainees.

2. **New South Wales.**—In this State, arrangements were made in May, 1907, for the medical inspection of school children in Sydney, and later in the year the work was extended to Newcastle. In 1911 the scheme was extended to the South Coast District and to a number of inland towns.

In 1913, the scheme of school medical inspection was re-organised so as to embrace every pupil in the State whose parents desired such medical inspection of their children.

Since this reorganization was effected, two complete examinations have been made of the whole State, each school being revisited every three years. Of the 432,325 children examined, 263,232 (60 per cent.) were found to be suffering from physical defects needing treatment, which was obtained in 46 per cent. of those notified. Though this percentage of treatment as the direct result of medical inspection has risen during the two triennial periods from 40 per cent. to 53 per cent., nearly half of those requiring attention fail to be attended to by the ordinary facilities for treatment.

During the years 1918 and 1919, 70,003 and 55,740 children respectively were medically examined, exclusive of the number examined by the travelling hospital and the travelling dental clinics. The fall in the numbers for 1919 was due to the influenza epidemic, when the schools were closed for eleven out of the 42 working weeks of the school year.

Of the above totals, 44,205 (63.1 per cent.) and 35,826 (64.2 per cent.) were found suffering from physical defects. Of these 38,964 and 30,907 were treated, 21,098 and 16,374 being attended to by Departmental officers, while 17,865 and 14,533 were treated by outside agencies, including hospitals, lodge doctors, private practitioners, and dentists.

The number of children treated by the Departmental treatment schemes during 1918 and 1919 were as follows:—Travelling hospital, 2,281 and 2,539; six travelling dental clinics, 12,033 and 11,296; metropolitan dental clinic, 3,893 and 2,462; and the travelling ophthalmic clinic, 3,082 and 162; or a grand total of 21,289 and 16,459 respectively.

Full details of the system in operation will be found in Official Year Book No. 12 (pp. 1069, 1070).

3. **Victoria.**—Details regarding development of school medical inspection in this State are given in Official Year Book No. 12 (pp. 1070–1).

During the year ended 30th June, 1919, 3,954 children were examined, of whom 1,324 boys and 1,307 girls attended elementary and special schools, and 568 boys and 755 girls attended high schools. Teachers examined numbered 574, all of whom were women.

The appointment of bush nurses has proved a boon in remote localities beyond convenient reach of medical aid.

4. **Queensland.**—During 1919, 13,913 individual medical examinations were made; the number of children reported as suffering from physical defects being 2,296. (See also Official Year Book No. 12, p. 1071.)

The number of pupils dentally inspected during 1919 was 16,294.

While adenoids and enlarged tonsils appear to be the principal defects throughout all the State schools, the children in the Northern and Western districts suffer largely from defective vision and trachoma. The work of the Ophthalmic Inspector is chiefly confined to these districts. The conclusion has been arrived at, as a result of the examinations, that such climatic conditions as dust, glare, heat, etc., so prevalent in the Western districts, which are often looked upon as the direct cause of serious blight or trachoma, are only predisposing causes, and can be safely ignored, provided elementary precautions are taken. The report of the Dental Inspectors, while still disclosing an appalling percentage of defects in the teeth of the children, shows a marked improvement.

5. **South Australia.**—(See also Official Year Book No. 12, p. 1071.)

During the year 1919, 3,199 children were examined, shewing a considerable percentage with defects of sight, hearing, nose and throat, sufficiently serious to interfere with their educational progress. In addition, the teeth of more than 2,000 children required urgent attention, 481 having teeth in so bad a condition as to affect their general health. It was found that, while teeth were bad in all the schools examined, the other defects mentioned were exhibited in a considerably greater degree among the city children as compared with those living in country districts. In the Far North of the State, the teeth were better than in the metropolis; but the visual ailments were more numerous, the eye-condition of the children born in the arid areas being very unsatisfactory.

6. **Western Australia.**—During 1917, a medical officer for schools was appointed, and inspections were carried out in some of the schools in that and the following year. The number of children examined was 6,072 in 1917, 4,804 in 1918, and 3,316 in 1919. (See also Official Year Book No. 12, p. 1072.)

7. **Tasmania.**—The credit of being the first State in the Commonwealth to provide for the medical inspection of schools and school children in a systematic way rests with Tasmania, where, under the direction of the Chief Health Officer and the Director of Education, about 1,200 children attending schools in Hobart were inspected in 1906. (See also Official Year Book. No. 12, p. 1072.)

Under the scheme in operation, practically all the primary school children of the State come under medical examination at least once in every two years. The examination in 1919 covered about 7,900 children. During 1916 school dental clinics were established in Hobart and Launceston. In that year 3,232 individual children were examined, 4,573 in 1917, 4,449 in 1918, and 3,068 in 1919.

§ 9. Nursing Activities.

By means of various nursing organizations throughout the Commonwealth, the benefits of professional advice and oversight of trained nurses are conveyed to the homes of workers and settlers, where skilled assistance would probably be otherwise unprocurable. While charitable aid has been to some extent responsible for the inauguration and extension of these movements, the trend of the various undertakings is in the direction of eliminating the element of charity, and, by raising subscriptions on a co-operative basis, making the scheme self-supporting. Details of organization and administration vary in different localities. Since the first bush nurse was settled at Beech Forest, Victoria, in 1911, the system has made satisfactory progress. Government aid, in the shape of free railway travelling for nurses, small monetary grants for professional advice in schools, etc., is given. In 1920 the British Red Cross made available a sum of £150,000, of which £15,000 was placed at the disposal of the Red Cross in each State, the income to be applied to bush nursing for returned soldiers and sailors and their families. By the nursing organizations, baby clinics, etc., a vast amount of useful information and advice concerning diet, hygiene, etc., is disseminated throughout the Commonwealth.

SECTION XXXI.

THE COMMONWEALTH SEAT OF GOVERNMENT.

1. **Introductory.**—In Year Books Nos. 4 and 5, information was given in this section as to the events leading to the selection of the Federal Capital Territory, and as to the necessary legislation and the progress of operations in connexion with the establishment of the capital city. The physiography of the Territory was dealt with *in extenso*, and topographical and contour maps accompanied the letterpress, as well as reproductions of the premiated designs for the laying out of the city. Considerations of space, however, preclude the repetition of this information. On the 12th March, 1913, the official ceremony to mark the initiation of operations in connexion with the establishment of the Seat of Government was carried out. At this ceremony the selection of "Canberra" as the name of the capital city was announced.

2. **Progress of Work.**—The design for the laying out of the capital city having been approved, the survey of the main axial lines has been completed, and an area of about 800 acres has been subdivided into sections. A certain amount of road formation has also been effected, but the work is now in abeyance. Considerable progress has been made with the nursery in connexion with the afforestation scheme, and the horticultural work undertaken includes cultivating plants for the Continental Arboretum, red park plantation for Narrabundah, pink park plantation for Mount Ainslie, yellow park plantation for Mount Black, and white forest on Mugga-Mugga, for the extensive redwood, pinetum, cedar, and cork oak economic forests. In addition, the previous pine, wattle, and eucalypt plantations have been maintained, and the propagation of native trees in quantities for parkway embellishment undertaken. The power plant is supplying current to all the important points. Active progress with construction has been restricted for the present, and operations are practically being confined to maintenance work.

The following figures indicate the actual work done in road development since the roads were taken over:—

Forming and finishing	$93\frac{1}{8}$ miles
Gravelling and metalling	$95\frac{1}{4}$ miles
Clearing out, repairing culverts, etc.	$162\frac{1}{8}$ miles
General road repairs	$178\frac{1}{8}$ miles
Cutting water tables, drains, etc.	$146\frac{1}{8}$ miles

3. **Lands in the Territory.**—As a considerable portion of the Commonwealth lands within the Territory is not required in connexion with the establishment of the city, such areas are being made available for leasing under certain conditions. A large number of leases has been disposed of under conditions requiring the extermination of rabbits, noxious animals and weeds. 18,000 sheep and 600 head of large stock are on agistment on land that will be required for departmental use at a later date. Reference has already been made on page 211 to the area of alienated, acquired and leased land within the Territory. All areas are classified into three classes of agricultural and three classes of grazing lands, and about 24,000 acres of these lands are at present leased to returned soldiers for periods varying from five to twenty-five years.

4. **Lands at Jervis Bay.**—Sovereign rights over a certain area comprising about 28 square miles of land and water at Jervis Bay, to be used as a Port in connexion with the Federal Capital, have been granted by the New South Wales Government, and accepted by the Commonwealth. The Royal Australian Naval College has been established in this area on a site known as Captain's Point.

5. **Railways.**—The line from Queanbeyan to Canberra, 4 miles 75 chains long, was opened for goods traffic on 25th May, 1914, and is being worked by the New South Wales Railways Commissioners. This line has been extended on to the power house, and is at present only used for departmental purposes; the total length is approximately $5\frac{1}{4}$ miles. A trial survey of the Canberra-Jervis Bay line has been completed, and plans have been prepared sufficient to enable an approximate estimate of the cost of the line to be arrived at. The trial survey from Canberra to the boundary of the Federal Territory (towards Yass), a distance of 11 miles, has been completed, as well as the survey of the line by the New South Wales Government from Yass to the Territory boundary, 22 miles.

6. Population and Live Stock.—The estimated population on 30th June, 1921, was 2,583. The live stock in the Territory, according to the latest returns, comprises:—Horses, 1,312; cattle, 9,039; sheep, 151,066; pigs, 103; and goats, 20.

7. Educational Facilities.—Arrangements have been made for the New South Wales Education Department to continue, for the time being, the administration of education in the Territory, the expenditure involved to be refunded annually by the Commonwealth to the State.

8. Revenue and Expenditure.—The net expenditure in the Federal Territory subsequent to the passing of the "Seat of Government Acceptance Act 1909," and up to the 30th June, 1919, was for 1910–11 £20,319, 1911–12 £64,772, 1912–13 £135,270, 1913–14 £251,669, 1914–15 £212,506, 1915–16 £166,052, 1916–17 £105,971, 1917–18 £32,111, 1918–19 £931, 1919–20 £2,977, making a total of £992,578. A detailed statement of the various items of expenditure since 1910 is given in the following table:—

COMMONWEALTH SEAT OF GOVERNMENT.—ADDITIONS, NEW WORKS. EXPENDITURE TO 30th JUNE, 1920.

Item.	Total Expenditure to 30th June, 1919.	Expenditure (or Credit), 1919–20. Dr.	Expenditure (or Credit), 1919–20. Cr.	Total Expenditure to 30th June, 1920.
	£	£	£	£
Afforestation	15,848	..	..	15,848
Bridges, Roads, and Culverts	82,743	..	..	82,743
Buildings, Repairs, etc.	*124,139*	*552*	..	*124,691*
Brickworks	45,797	..	7	45,790
Cement and Quarrying	5,111	..	..	5,111
Electric Lighting (Mains and Plant only)	*75,550*	*597*	..	*76,147*
Fire Brigade	1,267	..	..	1,267
Fencing	3,637	..	..	3,637
General Expenditure (including Administrative Charges)	153,148	74	..	153,222
Manufacturing Accounts	Cr. 5,154	2	..	Cr. 5,152
Maintenance Accounts	1,878	..	..	1,878
Motor Cars and Upkeep	9,214	..	..	9,214
Medical Services	11,842	..	..	11,842
New South Wales Government (Services Rendered)	15,039	..	..	15,039
Plant, Instruments, etc.	19,835	3,099	..	22,934
Railways	65,906	..	..	65,906
Rabbit Destruction	20,104	..	..	20,104
Stock (Material)	43,552	..	2,177	41,375
Sewerage, Mains, etc.	38,414	..	7	38,407
Water Supply	254,869	844	..	255,713
Wire Netting Lessees	6,862	..	..	6,862
Total	989,601	5,168	2,191	992,578

The revenue of the Federal Territory for the year ended 30th June, 1920, was £29,154, including £2,256 from rates.

9. Military College.—In June, 1911, a Military College was opened at Duntroon for occupation by the cadets and staff. Particulars regarding the establishment of this College may be found in Year Book No. 4 (p. 1159). Previous reference has been made to it in the section of this book dealing with Defence (see page 918).

10. *Naval College at Jervis Bay.—See section of this book dealing with Defence, page 924.*

SECTION XXXII.

THE NORTHERN TERRITORY

§ 1. Area and Population.

1. **Introductory.**—Upon the extension of New South Wales
meridian in 1827, the Northern Territory was comprised within
Book No. 4, page 16), and in 1863 was annexed by Royal Letters Patent to the province of South Australia. With the adjacent islands, it was transferred to the Commonwealth on 1st January, 1911.

2. **Area and Boundaries.**—The total area of this Territory is 523,620 square miles, or 335,116,800 acres. Its length from north to south is about 900 miles, while its breadth from east to west is 560 miles. Its eastern boundary, dividing it from Queensland, is the 138th meridian of east longitude; and its western boundary, separating it from Western Australia, the 129th meridian. Its southern boundary is the 26th parallel of south latitude, dividing it from South Australia. The northern boundary is the coast line of those parts of the Indian Ocean known as the Timor and Arafura Seas. Near the mouth of the Wentworth River, in the Gulf of Carpentaria, the coast line is met by the eastern boundary; at Cape Domett, near Cambridge Gulf, the western boundary cuts the northern coast line. The length of coast line is about 1,040 miles, or 503 square miles of area to one mile of coast line; an exact survey has, however, not yet been made.

3. **Population.**—(i) *Character.* In 1881 there were 670 Europeans in the Territory, and at the end of 1913 the number was estimated at 2,143. The Chinese population, at its maximum during the years of railway construction, 1887 and 1888, has gradually dwindled, the estimate for 1914 being 1,033. Japanese, first recorded in 1884, increased up to the year 1898, falling again after five years. The highest recorded population, excluding aborigines, was 7,533 in 1888; the estimate for 1920 was 3,992. The year 1911 was the first in which the population was dominated by the European race. A thirty years table of population, distinguishing races, will be found on page 1156 of the Commonwealth Official Year Book No. 5. Subsequent to the Census of 1911, a revision of the estimates, back to 1901, was made. The results are incorporated in the following table:—

POPULATION OF NORTHERN TERRITORY (EXCLUSIVE OF ABORIGINES), 1901 TO 1920.

Year ended 31st December.	Male.	Female.	Total.	Year ended 31st December.	Male.	Female.	Total.
1901 ..	3,999	674	4,673	1911 ..	2,644	589	3,233
1902 ..	3,847	627	4,474	1912 ..	2,807	628	3,435
1903 ..	3,582	652	4,234	1913 ..	2,926	690	3,616
1904 ..	3,514	692	4,206	1914 ..	3,165	738	3,903
1905 ..	3,368	678	4,046	1915 ..	3,586	898	4,484
1906 ..	3,248	656	3,904	1916 ..	3,712	954	4,666
1907 ..	3,095	642	3,737	1917 ..	3,748	1,055	4,803
1908 ..	2,963	609	3,572	1918 ..	3,499	1,141	4,640
1909 ..	2,927	576	3,503	1919 ..	3,376	1,171	4,547
1910 ..	2,738	563	3,301	1920 ..	2,911	1,081	3,992

The census population (4th April, 1921) was 2,821 males, 1,049 females; total, 3,870. The estimate for 31st December, 1920, gives 2,911 males, 1,081 females, a total of 3,992.

(ii) *Movement of Population.* The following is a summary of movement of population in 1920 (excluding overland migration):—

MOVEMENT OF POPULATION, NORTHERN TERRITORY, 1920.

Inwards	606	Outwards ..	1,161	Excess of immigration over emigration ..	−555
Births	63	Deaths ..	63	Excess of births over deaths ..	Nil
Increase ..	669	Decrease ..	1,224	Net result ..	−555

NOTE.—(−) signifies decrease.

The immigration and emigration of the Territory in five-year periods from 1881 to 1910, and for each of the years 1911 to 1920, are shown in the following table:—

MIGRATION, NORTHERN TERRITORY, 1881 TO 1920.

Year.	Immigration.	Emigration.	Year.	Immigration.	Emigration.	Year.	Immigration.	Emigration.
1881–5 ..	3,683	3,787	1911 ..	412	431	1916 ..	1,389	1,159
1886–90 ..	9,208	7,250	1912 ..	846	610	1917 ..	1,501	1,370
1891–5 ..	1,958	2,353	1913 ..	1,033	840	1918 ..	1,259	1,450
1896–1900	2,538	2,259	1914 ..	1,102	792	1919 ..	1,159	1,273
1901–5 ..	2,211	2,932	1915 ..	1,904	1,287	1920 ..	606	1,161
1906–10 ..	2,559	3,125						

(iii) *The Aborigines.* An account of the Australian aborigines, by Dr. W. Ramsay-Smith, was given in Year Book No. 3 (pp. 158–176). The interior of the continent is the most thickly populated by the natives, but it is believed that they are rapidly dying out. In these regions, remote from contact with other races, the native has maintained his primitive simplicity, and furnishes an interesting subject of study to the anthropologist and ethnologist. At the census of 1911, full-blooded aboriginals in the employ of whites and those who are living in a civilised or semi-civilised condition in the vicinity of European settlements, were enumerated—the males being 743, females 480; total, 1,223. Estimates of the total black population of the Territory vary from 20,000 to 50,000. The interests of the natives are looked after by a Protector of Aboriginals, with head-quarters in Darwin. On the 16th October, 1920, aboriginal reserves and mission stations in existence, or proposed, covered an area of nearly 33,000 square miles. The greatest difficulty which confronts the Administration in dealing with the natives is due to the circumstance that they are nomads without fixed abode, merely wandering about hunting for native food within the limits of their tribal boundaries, and making no attempt at cultivation or other settled industry. In their natural state, compared with those of other tropical countries the natives are very healthy, but in contact with new settlers, white or Chinese, they rapidly fall victims to disease, and to degradation from drink or opium.

§ 2. Legislation and Administration.

1. Transfer to Commonwealth.—(i) *The Northern Territory Acceptance Act.* A short historical sketch is given in Year Book No. 6, pp. 1113–4. On 1st January, 1911, the Territory was transferred by South Australia to the Commonwealth, upon terms previously agreed upon by the respective Cabinets, and ratified by the Commonwealth *Northern Territory Acceptance Act* (No. 20 of 1910). It is enacted that laws and courts of justice remain in operation, powers and functions of magistrates and officials remain vested; estates and interests continue upon the same terms; trade with Australian

States is declared free. The Commonwealth assumes responsibility for the State loans in respect of the Territory, paying the interest yearly to the State, providing a sinking fund to pay off the loans at maturity, and paying off the deficit in respect of the Territory. It also purchases the Port Augusta to Oodnadatta railway, and agrees to complete the construction of the transcontinental railway from Port Darwin to Port Augusta.

(ii) *The South Australian Surrender Act.* The State Act approves and ratifies the agreement surrendering the Territory.

(iii) *The Northern Territory (Administration) Act 1910.* The Act provides for Government authorising the appointment of an Administrator and officials. South Australian laws are declared to continue in force as laws of the Territory, and certain Commonwealth Acts to apply. Power is given to the Governor-General to make Ordinances having the force of law.

(iv) *Administration.* A Resident Administrator, vested with supreme authority in internal affairs, was appointed in the Department of the Minister for External Affairs in February, 1912. Many other important administrative offices have also been filled.

(v) *Legislation.* The main provisions of the Ordinances passed are as follows:—The powers and duties of the Administrator vested in the appointee, include custody of the public seal, appointment and suspension of officials, and execution of leases of Crown lands. A Supreme Court with original and appellate jurisdiction is instituted, the method of appointment of the Judge is prescribed, and provision is made for trial by jury, and for the registration and summoning of jurors. A Sheriff, a Registrar-General, and a Health Officer are provided for, also the registration of births, marriages and deaths, and of deeds and documents. Custody and control of aborigines, with extensive powers of supervision, are vested in the Chief Protector. Provision is made for the control of fisheries. Birds protected during the whole or part of the year are scheduled. Crown lands are classified, and their mode of acquisition, entry and holding defined. The prevention and eradication of diseases in plants have been provided for. Under the Stock Diseases Ordinance the Chief Inspector of Stock has wide powers in regard to the movements of stock, prevention and control of diseases, etc. Shop assistants are to have a weekly half-holiday, and the establishments must be closed at a certain time. A town council has been constituted for Darwin, and provision made for assessments, rates, etc. Mining is encouraged by the provision of rewards for the invention of new processes, and the discovery of valuable deposits and of new mineral fields; subsidisation of the industry and the issue of prospecting licenses are also provided for. Licenses to search for mineral oil, and leases for working, are available. Provision has been made for the granting of leases for oyster culture. A Board is constituted for the purpose of making advances to settlers who intend to improve and stock their holdings, to purchase farm implements, plant, etc., or to pay off mortgages, the rate of interest and terms of repayment being set out. Advances in aid of the erection of workmen's dwellings have also been provided for. A Council of Advice has been appointed, consisting of a chairman and seven members—four being non-official—the object of the Council being to advise the Minister on matters affecting the welfare of the Territory. Provision has been made for the compensation of injured workers, for controlling the sale, &c., of necessary commodities, for the appointment of a public trustee, and for amendment of the "Taxation Act 1884" of South Australia in its application to the Territory. Reference to the Liquor Ordinance will be found hereunder.

(vi) *Liquor Traffic.* By the Liquor Ordinances of 1915–17–18, the Commonwealth Government assumed the control of the importation, manufacture, and sale of liquor in the Territory. There is a liquor store at Darwin and three hotels, and a hotel at Pine Creek. The Department directs its energies to the minimising of excessive drinking and the prevention of illicit trading in intoxicants.

It has recently been decided to lease the hotels to private tenderers.

(vii) *Schedule of Ordinances.* A schedule of the ordinances promulgated up to the end of 1920 is given hereunder:—

1911.—1, Northern Territory Government; 2, Council of Advice; 3, Sheriff; 4, Tin Dredging; 5, Marine; 6, Registration of Births, Marriages, and Deaths; 7, Interpretation; 8, Stamp Duties Abolition; 9, Supreme Court; 10, Registration; 11, District Council Assessment; 12, Registration; 13, Fisheries; 14, Lands Acquisition; 15, Interpretation; 16, Aboriginals.

1912.—1, Native Birds Protection; 2, District Council Assessment; 3, Crown Lands; 4, Supreme Court; 5, Health; 6, Thorngate Estate; 7, Jury; 8, Crown Lands; 9, Early Closing.

1913.—1, Mineral Oil; 2, Birds Protection; 3, Registration of Births; 4, Encouragement of Mining; 5, Advances to Settlers; 6, Public Service; 7, Crown Lands; 8, Marriage Validating.

1914.—1, Brands; 2, Crown Lands.

1915.—1, Licensing; 2, Birds Protection; 3, Roads; 4, District Council; 5, Health; 6, District Council Amendment; 7, Darwin Town Council; 8, Liquor.

1916.—1, Liquor Amendment; 2, Eradication of Noxious Weeds.

1917.—1, Crown Lands Amendment; 2, Darwin Town Council Amendment; 3, Marriage; 4, Appointment of Acting Administrator; 5, Education; 6, Crown Lands Amendment; 7, Prevention and Eradication of Diseases in Plants; 8, Liquor Amendment; 9, Stamp; 10, Darwin Pound; 11, Crown Lands Amendment.

1918.—1, Supreme Court Amendment; 2, Crown Lands Amendment; 3, Darwin Town Council Amendment; 4, Darwin Pound Amendment; 5, Plant Diseases; 6, Liquor Amendment; 7, Oyster Culture Leases; 8, Liquor Amendment; 9, Aboriginals; 10, Stock Diseases; 11, Liquor Amendment; 12, Supreme Court Amendment; 13, Real Property; 14, Crown Lands Amendment; 15, Closing of Roads.

1919.—1, Interpretation (Amendment of No. 2, 1911); 2, Bush Fires; 3, Jury Amendment; 4, Bank Holidays; 5, Workmen's Dwellings; 6, Supreme Court Amendment; 7, Jury Amendment (No. 2); 8, Council of Advice Amendment; 9, Justices' Appeals; 10, Deputy Administrator; 11, Deputy Administrator, No. 2; 12, Justices' Appeals, No. 2; 13, Supreme Court, No. 2.

1920.—1, Tin Dredging (Amendment of No. 4, 1911); 2, Birds Protection (Amendment of No. 2, 1913, and No. 2, 1915); 3, Workmen's Compensation; 4, Dog (Amending "Dog Act 1884," South Australia); 5, Pastoral Leases; 6, Necessary Commodities; 7, Lunacy; 8, Public Trustee; 9, Supreme Court (Amending No. 9, 1911, Nos. 1 and 12, 1918, Nos. 6 and 13, 1919); No. 10, Taxation; No. 11, Examination of Engine-drivers.

(viii) *Representation.* Section 122 of the Commonwealth Constitution provides that "the Parliament may make laws for the government of any territory . . . and may allow the representation of such territory in either house of the Parliament to the extent and on the terms which it thinks fit." Dissatisfaction has been expressed by the residents of the Territory because so far this provision has not been applied, but it is hoped that the disability will shortly be removed by providing for the election of a representative in the Federal Parliament.

§ 3. Physiography.

1. **Tropical Nature of the Country.**—The Territory is within the torrid zone, with the exception of a strip 2½ degrees wide, which lies south of the Tropic of Capricorn.

2. **Contour and Physical Characteristics.**—The low flat coast line seldom reaches a height of 100 feet. Sandy beaches and mud flats, thickly fringed with mangroves, prevail. Sandstone, marl, and ironstone form the occasional cliffy headlands. The sea frontage of more than 1,000 miles is indented by bays and inlets and intersected by numerous rivers, many of which are navigable for considerable distances from their estuaries.

The principal features of the coast line are enumerated in Year Book No. 1, p. 66; the rivers in Year Book No. 2, p. 76; the mountains in Year Book No. 3, p. 67; the lakes in Year Book No. 4, p. 77; the islands in Year Book No. 5, pp. 71, 72, and the mineral springs in Year Book No. 6, p. 65.

Inland, the country generally is destitute of conspicuous landmarks. From the coast there is a general rise southwards to the vicinity of the 17th or 18th parallel of south latitude, where the higher lands form the watershed between the rivers that flow northwards to the sea, and those that form the scanty supply of the interior systems. Towards the centre of the continent, the land over a wide area is of considerable elevation, and there are several mountain ranges, generally with an east and west trend.

§ 4. Climate, Fauna and Flora.

1. **The Seasons.**—There are two main climatic divisions—the wet season, November to April, and the dry season, May to October, with uniform and regular changes of weather. Nearly the whole of the rainfall occurs in the summer months. Fuller particulars will be found in Year Book No. 6, p. 1116.

2. **Fauna.**—The ordinary types of native Australian fauna inhabit the territory. As elsewhere on the continent, the higher *Theria* are rare, but marsupials, birds, crocodiles, fresh-water tortoises, snakes (mostly non-venomous), and frogs abound. There are many varieties of freshwater fish and littoral mollusca. Butterflies and beetles are strongly represented. The white ant is a pest, anthills in the Territory sometimes attaining great dimensions. Mosquitoes and sandflies are very troublesome, particularly in the wet season. Native fauna are in some cases protected. The domesticated animals have been introduced, and buffalo also exist in large herds.

3. **Flora.**—The vegetation is North Australian in type, but a number of the forms belong to the Malayan and Oceanic regions. The timber trees are not of great commercial value, but in the coastal regions tropical vegetation grows luxuriantly to the water's edge. On the wide expanses of plain country of the interior, there is little vegetation. The principal orders represented in the Territory are :—*Euphorbiaceæ, Compositæ, Convolvulaceæ, Rubiaceæ, Goodenoviaceæ, Leguminosæ, Urticeæ.*

Fuller particulars regarding fauna and flora are given in Year Book No. 6, pp. 1116-7.

§ 5. Production.

1. **Agriculture.**—Up to the present, agriculture has made little progress in the Territory, although it has been demonstrated that rice may be grown as an ordinary crop suitable for chaff as fodder, and in certain situations for milling ; while maize, cowpeas, sorghum, ambercane, millets of various kinds, and sugar-cane can also be cultivated. The drawbacks to success at the present are lack of suitable labour, deficient means of communication, and periodicity of the rainfall. Purely tropical products such as cotton, tea, coffee, sisal hemp, and cigar tobacco can flourish, but their profitable cultivation depends on a supply of cheap labour, which is unobtainable. The Commonwealth Government established demonstration farms at Daly River and Batchelor, but these have been converted into aboriginal compounds. During the dry season considerable trouble is caused by the depredations of white ants.

2. **Stock.**—(i) The spacious, well-grassed " runs " of the Territory are, with adequate water supply, suitable for horse and cattle breeding. According to the Report of the Acting Administrator, the area under pastoral lease on the 30th June, 1920, was 166,641 square miles. Large numbers of cattle are overlanded to neighbouring States, which also take considerable quantities of horse hides. Five gazetted stock routes aggregate a distance of 2,121 miles, and with the completion of the present contract for bores there will be a good supply of permanent water thereon. There are Government cattle stations at Oenpelli (2,000 square miles), Mataranka (864 square miles), and Batchelor (243 square miles), carrying altogether about 2,000 cattle and 300 horses, these figures representing only about one-fifth of the present estimated capacity of the stations.

An experiment with sheep on Mataranka Station was not very successful owing to unsatisfactory lambing and the dingo and hawk pests, and the flock was disposed of to a private purchaser. The estimated number of stock in the Territory on 31st December, 1919, is given in the appended statement :—

LIVE STOCK, NORTHERN TERRITORY, 31st DECEMBER, 1919.

Horses.	Cattle.	Sheep.	Pigs.
35,539	610,534*	8,811	1,675

In 1919 there were also 12,582 goats, and small numbers of camels, mules, and

The dairying industry has not been developed, although it has been shewn that it is possible to make butter of good quality. A sample from Oenpelli has been very favourably reported on by the Chief Dairy Produce Expert. Fresh milk is procurable in Darwin from the Government dairy, which was leased to a private supplier in 1914. It is found that the rank indigenous grasses in some localities are greatly improved by constant stocking, and become largely replaced by shorter and sweeter varieties.

Herds of wild buffaloes are found on the mainland and on Melville Island, and are descendants of swamp buffaloes, introduced in the early part of last century. The numbers have, however, been greatly depleted by buffalo shooters. During the 25 years ending in 1911 about 4,000 hides per annum were exported. It is stated that the number of buffaloes left in the Territory is now only about 20,000. The flesh of the animal is said to be remarkably free from disease and to equal beef in food value, while buffalo milk is twice as rich in butter fat as ordinary cow's milk.

(ii) *Meat Preserving Works.* By agreement with the Government an extensive meatworks under private ownership was established in the vicinity of Darwin, and commenced operations in April, 1917. During fourteen weeks of this year the number of cattle treated was 19,000. In 1918 and 1919 operations again started in April and lasted for sixteen weeks in each year, the "kill" in the former year being 20,000, and in the latter 22,000. Owing to difficulties occasioned chiefly by the dearth of shipping the works were forced to close down in 1920.

3. **Mining.**—Small quantities of the precious and commercial metals are mined. The discovery of gold and tin in various localities, and the measure of success that has attended their working, indicate scope for development. An important discovery of tin at Maranboy Springs was made in 1913, and this field is now the most productive in the Territory. It is stated that better results could be obtained by amalgamating the smaller properties, and working on a larger scale, with more modern methods. Attention has also been called to the damage done to many promising gold-bearing areas through the improper methods of working adopted by Chinese miners.

The copper mining industry was hampered in 1918–19 by the decline in the price of the metal. Production at Mount Diamond for the latest year available amounted to 63 tons.

Wolfram is produced at the Wauchope and Hatches Creek fields in the Davenport Ranges and at Yenberrie and Wolfram Creek.

Two salt areas have been taken up, and are being worked at Darwin and the Foelshe River respectively.

(i) *Mineral Production.* Both alluvial and reef gold are found, and there are several batteries and cyanide plants. Other minerals are also raised. The following table shews the total mineral production for the last five years :—

VALUE OF MINERAL PRODUCTION, NORTHERN TERRITORY, 1914 TO 1918–19.

Year.	Gold.	Tin Ore.	Wolfram.	Silver-Lead Ore.	Copper Ore.	Total Value.
	£	£	£	£	£	£
1914	10,757	15,200	4,025	545	4,860	35,807
1915	4,182	13,245	5,278	1,073	10,710	34,498
1916	2,554	27,120	20,269	275	5,517	55,780
1917–18	2,229	41,432	38,788	200	9,648	92,730
1918–19	4,234	30,021	34,805	132	2,349	71,697 (a)

(a) Including mica, £150; molybdenite, £6.

The falling off in 1918–19 is more apparent than real, as large parcels of dressed and bagged wolfram ore from Wolfram Creek, Hatches Creek, and Wauchope Creek fields were unsold at the end of the year.

(ii) *Employment of Miners, 1914 to 1918–19.* The following table shews the average number employed in mining during the last five years, distinguishing Chinese :—

MINERS, NORTHERN TERRITORY, 1914 TO 1918–19.

Year.	Europeans.	Chinese.	Total.
1914	136	462	598
1915–16	137	371	508
1916–17	141	350	491
1917–18	194	282	544(*a*)
1918–19	194	260	470(*b*)

(*a*) Including 68 aboriginals and other coloured men. (*b*) Including 16 aboriginals.

(iii) *Mining Accidents, 1911 to 1918–19.* In 1911 five mining accidents were recorded, four resulting in death. There were no serious accidents in 1910, 1912, and 1913, and only one, resulting in death, in 1914, and one in each of the years 1915, 1916, and 1917–18. No mining accidents were recorded in 1918–19. During the nine years preceding (1901–1909), nine fatal accidents and seven cases of serious injury were recorded. The majority of the victims were Chinese.

4. Pearl, Trepang, and Other Fisheries.—In 1884 mother-of-pearl shell was discovered in the harbour of Port Darwin. Difficulty in working, principally through heavy tides and muddy water, retarded the development of the industry for many years. Subsequently, however, the opening up of new patches led to a revival, but the outbreak of war gave the industry a setback for a time and, owing to the limited demand in the home markets, operations are still on a restricted scale. The latest figures available refer to the year ended 30th June, 1920, when 11 boats were engaged, and 56 men were employed, all of whom, with the exception of 4 Europeans, were Japanese and Koepang natives. Thirty tons of pearl shell were obtained.

About 56 tons of bêche-de-mer were exported during the year, 14 boats being engaged in the fishery, the Europeans employed thereon numbering 21.

It may be mentioned that the territorial waters abound in marketable fish, and, given transport facilities, it would be possible to establish a trade in fish dried or otherwise preserved.

§ 6. Commerce and Shipping.

1. Trade.—The following table shews the total trade of the Territory for 10 years from 1901 to 1910 :—

VALUE OF TOTAL IMPORTS AND EXPORTS, NORTHERN TERRITORY, 1901 TO 1910.

Items.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.
	£	£	£	£	£	£	£	£	£	£
Imports ...	108,886	107,217	125,244	113,461	86,878	74,659	78,996	68,905	57,994	52,398
Exports ...	302,931	191,558	178,266	235,650	216,279	254,222	345,721	241,028	278,555	269,063
Total Trade	411,817	298,775	303,510	349,111	303,157	328,881	424,717	309,933	336,549	321,461

No record is now kept of the direction of trade between the Commonwealth States and Territories. It is, therefore, impossible to give the total imports and exports of the Northern Territory for years later than 1910. The value of the direct oversea trade for 1901, and for each of the years 1915–16 to 1919–20, is given hereunder :—

VALUE OF DIRECT OVERSEA TRADE, NORTHERN TERRITORY, 1901 AND 1915–16 TO 1919–20.

Items.	1901.	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.
	£	£	£	£	£	£
Imports	37,539	74,424	82,775	32,287	25,140	29,056
Exports	29,191	20,953	13,251	268,419	377,258	277,627
Total	66,730	95,377	96,026	300,706	402,398	306,683

The principal items of oversea export in 1919–20 were beef, preserved by cold process, £227,815; tallow, £31,712; hides, cattle, £5,741; hides, other, £3,179; fish, smoked or dried, £4,988; horns, £1,957; and pearl shell, £750. The large increase in 1917–18 and 1918–19 as compared with previous years is due to the operations of the meat preserving works at Darwin. Owing to the closing down of these works in 1920 the figures for the year shew a considerable decline as compared with those for the previous year.

2. **Shipping.**—The Territory is dependent for its shipping facilities chiefly on the services of the "Montoro" and "Mataram," trading between Sydney and Singapore. The vessels of the Eastern and Australian Co. and Japanese and other vessels make occasional visits, while a quarterly service between Fremantle and Darwin is carried out by the "Bambra," belonging to the West Australian State Shipping Service.

SHIPPING, NORTHERN TERRITORY, 1881 TO 1919–20.

Period.	Arrivals.		Departures.	
	No. of Vessels.	Tonnage.	No. of Vessels.	Tonnage.
1881–1885 (Annual Average) ..	72	71,814	72	71,692
1886–1890 ,, ,, ..	95	94,452	103	94,724
1891–1895 ,, ,, ..	75	81,128	73	81,090
1896–1900 ,, ,, ..	71	88,284	70	88,244
1901–1905 ,, ,, ..	63	93,751	63	91,556
1906–1910 ,, ,, ..	87	128,502	88	128,408
1915–16	91	208,441	91	208,441
1916–17	70	161,636	68	161,313
1917–18	51	115,288	50	107,497
1918–19	43	88,928	42	88,806
1919–20	41	83,086	43	83,264

The Government owns two small vessels, the "Sir John Forrest" an auxiliary ketch of 122 tons, and the "John Alce," 33 tons.

§ 7. Internal Communication.

1. **Railways.**—Under the agreement ratified by the Act, the Commonwealth is to construct the Northern Territory portion of the transcontinental railway line (connecting Adelaide and Darwin, via Port Augusta).

The Northern line from Adelaide terminates at Oodnadatta, about 100 miles south of the southern boundary of the Territory. The only line at present in the Territory is one from Darwin to Katherine, a length of 200 miles, of 3 ft. 6 in. gauge. The line to connect Katherine River with Oodnadatta (about 1,010 miles) has been surveyed, the

greater part of the survey being exploratory in character. The completion of the gap would also permit of the development of the broad belts of pastoral and mineral country towards the centre of Australia. The Commonwealth also acquired on 1st January, 1911, the property in the line from Port Augusta to Oodnadatta (478 miles).

2. **Posts.**—The principal mail services are as follows :—

(i) *Marine.* Postal communication is maintained monthly to and from Sydney and via Queensland ports by vessels belonging to Burns, Philp, and Co. The same company maintains a monthly service between Sydney and Singapore via Queensland ports and Darwin. In addition, the vessels belonging to the State Steamship Service of Western Australia give a service once every sixty days between Fremantle and Darwin.

(ii) *Inland.* Posts are also despatched into the interior of the Territory. For example, there is a fortnightly mail each way between Oodnadatta and Alice Springs, a distance of 300 miles, a monthly service between Horse Shoe Bend and Hermannsberg, 176 miles, and between Alice Springs and Arltunga, 65 miles, and so on. Limits of space preclude the insertion of a complete list of the inland services to various points in the Territory and to Camooweal in Queensland, and for these the reader is referred to pp. 35 and 36 of the Administrator's Report for the year ended 30th June, 1920.

3. **Telegraphs.**—The transcontinental telegraph line, covering a length of 2,230 miles, was completed on the 22nd August, 1872, at a cost of nearly half-a-million sterling. The line runs in a northerly direction from Adelaide to Darwin, whence telegraphic communication is provided with Asia and Europe, via Banjoewangie (Java), Singapore, and Madras.

Between Darwin and Banjoewangie the submarine cable is duplicated.

§ 8. Finance.

1. **Revenue and Expenditure, 1919–20.**—In the Commonwealth finance statements separate accounts are given for Northern Territory administration. The following shews the receipts and expenditure for the financial year :—

REVENUE AND EXPENDITURE, NORTHERN TERRITORY, 1919–20.

REVENUE.	£	EXPENDITURE.	£
Customs and Excise	3,995	Salaries and Contingencies	129,151
Postal, Telegraph, and Telephone	10,922	Darwin-Katherine Railways—Working Expenses	50,647
Darwin-Katherine River Railway	31,783	Melbourne Administrative Services	3,182
Territorial	18,846	Royal Commission	4,662
Land and Income Tax	6,445	Interest and Sinking Fund, Commonwealth Stock, issued for Redemption of Loans, Railway Construction, etc.	30,860
Miscellaneous	12,849	Interest on Treasury Bills, issued for Redemption of Loans, Railway Construction, etc.	40,439
Quarantine	31	Interest and Sinking Fund, Northern Territory Loans	74,872
Lighthouses and Light Dues	1,124	Interest on Loans, Loss on Working, etc., Port Augusta Railway	104,043
Stamp Duties	740	New Works, Artesian Bores, Roads, etc.	17,417
Deficiency on year's transactions	375,529	Miscellaneous	7,191
	462,264	Total	462,264

2. **Northern Territory Debt.**—The items making up the total debt of the Territory as at 30th June, 1920, are as follows :—

		£	£
Debt at date of transfer to the Commonwealth, 1st January, 1911 ..	..	..	3,931,086
Redeemed under Commonwealth Loan Acts	..	1,037,353	1,497,978
Redeemed from Consolidated Revenue	..	460,625	
Balance, 30th June, 1920	..	..	2,433,108

In addition, the balance of the Port Augusta–Oodnadatta Railway Loans taken over from South Australia amounted at the same date to £1,759,003, making a total of £4,192,111. Under the provisions of the "Northern Territory Acceptance Act 1910" a sinking fund has been established in connexion with the transferred loans.

§ 9. Land Tenure.

1. **Present Policy.**—A description of the system of land settlement in force in the Territory will be found in the chapter "Land Tenure and Settlement," see pages 179 and 180 *supra*. Prior to the transfer of the Territory to the Commonwealth on 1st January, 1911, the sale and occupation of lands were regulated by the South Australian Legislature in Statutes applying particularly to the Territory. Under the Commonwealth Government a complete reorganisation was effected, and the system adopted was embodied in the Crown Lands Ordinances of 1912 to 1918. A leasehold system only is provided for, and no further alienation of Crown lands is permitted, except in pursuance of existing agreements. The land is classified and appraised, and leased in blocks, the maximum areas ranging from 300 square miles of first class pastoral (or 600 square miles of second class pastoral, or 1,500 square miles of third class pastoral), to 1,280 acres of first class agricultural land. The terms for pastoral leases are for Class 1, 21 years; Classes 2 and 3, 42 years; and for any miscellaneous lease, 21 years. All other leases are to be in perpetuity, making them almost equivalent to freeholds, but with re-appraisement of rent values every 14 years in the case of town lands, and every 21 years in the case of agricultural and pastoral lands. The conditions are of a very favourable nature, with low rents and elastic conditions of tenure. In order to provide for cases where allottees on inspection of their blocks have reasonable grounds for preferring another block, the Administrator is empowered to revoke leases, under certain conditions. Under the Advances to Settlers Ordinance 1913, provision was made for giving settlers financial assistance in the pioneering years. Repayment of loans can be extended over a period of 30 years. Owing to the high evaporation rate, the surface waters in the Territory dwindle rapidly during the dry season, and, except in favoured localities, sub-artesian supplies must be resorted to where obtainable. In order to encourage the provision of water supply, it is proposed, in granting leases, to allow minimum rentals in the case of lessees who make satisfactory provision by means of bores, wells, or dams.

The revenue from pastoral leases and permits for the year 1919–20 was about £15,700, and from grazing licences £1,300.

2. **Number of Holdings.**—The table on page 180 *supra* shews the total area under lease, license, and permit in 1901 and in each year from 1915 to 1920. On the 30th June, 1920, there were in existence 402 pastoral leases covering 166,641 square miles, 122 grazing licences covering 36,571 square miles, and 54 miscellaneous leases and 17 pastoral permits embracing areas respectively of 1,406 and 7,328 square miles.

SECTION XXXIII.

LABOUR AND INDUSTRIAL STATISTICS.

§ 1. Introductory.

1. **General.**—In Year Book No. 7 (pages 992–3), a résumé was given of the functions and scope of the Labour and Industrial Branch of the Commonwealth Bureau of Census and Statistics. Owing to limitations of space, this information is not repeated in the present issue of the Year Book.

§ 2. Fluctuations in Employment and Unemployment.

1. **General.**—The particulars shewn in the following tables are based upon information furnished by the secretaries of trade unions in the several States of the Commonwealth. It will be seen from the tables that the membership of unions regularly reporting has exceeded 300,000 since 1918. Unemployment particulars are not collected from those unions whose members have permanency of employment, such as railway and tramway employees, and public servants, or from unions whose members are casually employed (*wharf labourers, etc.*). *Very few of the unions pay unemployment benefit*, but the majority of the larger organizations have permanent secretaries and organizers who are closely in touch with the members and with the state of trade within their particular industries. In many cases unemployment registers are kept, and provision is also made in the rules for members out of work to pay reduced subscriptions. Taking these facts, and also the large membership of the numerous unions from which regular quarterly returns are being received, into consideration, it will be realized that percentage unemployment results based on trade union information may be taken to shew the general trend of unemployment existing in the several States. The tables do not furnish a complete register of unemployment, but for the purpose of making comparisons and shewing tendencies over a period of years, the percentages returned as unemployed, though not exact, are the most satisfactory available. The investigation for past years was limited to a record of the numbers unemployed at the end of each year. The results are subject to certain limitations, inasmuch as they do not take into account variations in employment and unemployment throughout the year due to seasonal activity and other causes. For the above reasons it is not safe to conclude that the actual percentage returned as unemployed in past years by trade unions at the end of each year is equal to the average percentage unemployed during the year. It may be mentioned that, in order to overcome the difficulties alluded to in regard to seasonal fluctuations, returns as to numbers unemployed have been collected from trade unions for each quarter since the beginning of the year 1913.

2. **Number Unemployed in Various Industries, 1891 to 1920.**—The following table shews for each of the years specified :—(*a*) The number of unions for which returns as to unemployment are available; (*b*) the number of members of such unions; (*c*) the number of members unemployed, and (*d*) the percentage of members unemployed on the total number of members of those unions for which returns are available.

UNEMPLOYMENT.—NUMBER OF UNIONS AND MEMBERS REPORTING AND NUMBER AND PERCENTAGE UNEMPLOYED, 1891 TO 1920 (4th QUARTER).

Particulars.	Unions.	Membership.	Unemployed. Number.	Unemployed. Percentage.
1891	25	6,445	599	9.3
1896	25	4,227	457	10.8
1901	39	8,710	574	6.6
1906	47	11,299	753	6.7
1907	51	13,179	757	5.7
1908	68	18,685	1,117	6.0
1909	84	21,122	1,223	5.8
1910	109	32,995	1,857	5.6
1911	160	67,961	3,171	4.7
1912	464	224,023	12,441	5.5
1913	465	251,207	13,430	5.3
1914	439	250,716	27,610	11.0
1915	465	273,149	18,489	6.8
1916	470	292,051	19,562	6.7
1917	459	296,937	21,989	7.4
1918	475	308,850	16,919	5.5
1919	459	317,413	16,637	5.2
1920, 1st Quarter	461	329,127	18,396	5.6
2nd ,, ...	449	343,144	21,186	6.2
3rd ,, ...	426	344,582	21,375	6.2
4th ,, ...	450	351,013	27,463	7·8

NOTE.—For years prior to 1920 the figures refer to the end of the year only; similar figures for each of the four quarters of the years since 1912 will be found in the Labour and Industrial Reports. The quarterly figures shew the number of persons who were out of work for three days or more during a specified week in each quarter; they do not include persons out of work through strikes or lockouts.

The figures shew that the percentage of unemployment in the fourth quarter of 1920 (7.8 per cent.) was higher than in the same period of any other year since 1914, which closed with a proportion of unemployment of 11.0 per cent.

3. **Unemployment in Different Industries, 1920.**—The following table shews the percentages unemployed in several of the fourteen industrial groups. It may be observed that for those industries in which employment is either unusually stable or, on the other hand, exceptionally casual, information as to unemployment cannot ordinarily be obtained from trade unions. Hence, certain industries such as railways, shipping, agricultural, pastoral, etc., and domestic, hotels, etc., are insufficiently represented in the returns. Particulars are not, therefore, shewn separately for these groups, such returns as are available being included in the last group, "Other and Miscellaneous."

UNEMPLOYMENT IN DIFFERENT INDUSTRIES AT THE END OF YEAR 1920.

Industrial Group.	Number Reporting. Unions.	Number Reporting. Members.	Unemployed. Number.	Unemployed. Percentage.
I. Wood, Furniture, etc. ..	17	17,232	756	4.4
II. Engineering, Metal Works, etc.	60	44,058	1,894	4.3
III. Food, Drink, Tobacco, etc. ..	60	35,882	7,255	20.2
IV. Clothing, Hats, Boots, etc. ..	26	36,549	2,650	7.3
V. Books, Printing, etc. ..	27	13,425	344	2.6
VI. Other Manufacturing ..	71	32,307	3,237	10.0
VII. Building	52	33,125	704	2.1
VIII. Mining, Quarrying, etc. ..	21	28,504	1,717	6.0
X. Other Land Transport ..	13	10,988	401	3.6
IX., XI., XII., XIII., and XIV., Other and Miscellaneous	103	98,943	8,505	8.6
All Groups	450	351,013	27,463	7.8

4. Unemployment in each State, 1920.—Any deductions which can be drawn from the data collected as to the relative degree of unemployment in the several States are subject to certain qualifications (in addition to those already stated on page 998), inasmuch as the industries included in the trade union returns are not uniform for each State. In comparing the results for the individual States, it must therefore be borne in mind that, to some extent at least, comparisons are being drawn between different industries and not only between different States. Nevertheless, since the industrial occupations of the people vary considerably in the several States, all comparisons between the States based on comprehensive data as to unemployment must, to some extent, suffer from the defect indicated.

UNEMPLOYMENT IN DIFFERENT STATES AT THE END OF YEAR, 1920.

State.	Number Reporting.		Unemployed.	
	Unions.	Members.	Number.	Percentage.
New South Wales	127	144,700	10,049	6.9
Victoria	99	105,786	7,739	7.3
Queensland	57	42,724	6,982	16.3
South Australia	56	23,498	1,202	5.1
Western Australia	68	25,505	1,229	4.8
Tasmania	43	8,800	262	3.0
Commonwealth	450	351,013	27,463	7.8

§ 3. Current Rates of Wage in Different Occupations and States.

1. *Minimum Rates of Wage.*—The collection of material respecting the current rates of wage payable in different callings and in occupations in various industries carried on in each State of the Commonwealth was first undertaken by the Commonwealth Bureau of Census and Statistics in the early part of the year 1913. The particulars acquired were obtained primarily from awards, determinations and agreements under Commonwealth and State Acts, and therefore shew the minimum rates prescribed. In cases where no award, determination, or agreement is in force, particulars are given, where possible, of the ruling union or predominant rate as furnished by employers or secretaries of Trade Unions.

An extensive tabular presentation of the minimum rates of wage for adult male and female workers in the main occupations in the capital city of each State will be found in the Labour Report, No. 11. Space will not permit of the inclusion of the detailed tables in this volume.

2. Weighted Average Nominal Weekly Rate of Wage Payable to Adult Male Workers in each State, 31st December, 1920.—The following table shews the weighted average nominal weekly rate of wage payable to adult male workers for a full week's work in each State and the Commonwealth. Taking the average for the whole Commonwealth as the base (=1,000), index-numbers for each State are also shewn. The number of occupations upon which these results are based amounts in the aggregate to no fewer than 3,948.

WEIGHTED AVERAGE NOMINAL WEEKLY RATE OF WAGE PAYABLE TO ADULT MALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN EACH STATE AND COMMONWEALTH, 31st DECEMBER, 1920.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Number of Occupations included	874	909	627	567	489	482	3,948
Weighted Average Weekly Rate of Wage	94s. 0d.	86s. 1d.	91s. 5d.	82s. 8d.	89s. 9d.	85s. 9d.	89s. 10d.(a)
Index-Numbers	1,047	958	1,018	920	999	955	1,000(a)

(a) Weighted average.

The results shew that the weighted average nominal weekly rate of wage was highest in New South Wales, followed in the order named by Queensland, Western Australia, Victoria, Tasmania, and South Australia.

3. **Weighted Average Nominal Weekly Rate of Wage Payable to Adult Male Workers in each Industrial Group, 31st December, 1920.**—The following table gives similar particulars in regard to the several industrial groups and to the weighted average for all groups combined. In computing the index-numbers the weighted average for all groups is taken as base (=1,000).

WEIGHTED AVERAGE NOMINAL WEEKLY RATE OF WAGE PAYABLE TO ADULT MALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN EACH INDUSTRIAL GROUP, 31st DECEMBER, 1920.

Industrial Group.	No. of Rates Included.	Weighted Average Weekly Wage (for Full Week's Work).	Index Numbers.
		s. d.	
I. Wood, Furniture, etc.	270	95 1	1,058
II. Engineering, Metal Works, etc. ..	636	92 5	1,029
III. Food, Drink, etc.	576	89 3	994
IV. Clothing, Boots, etc	124	86 5	963
V. Books, Printing, etc.	205	99 6	1,108
VI. Other Manufacturing	875	88 11	990
VII. Building	190	95 7	1,064
VIII. Mining	161	103 10	1,156
IX. Rail and Tram Services	224	93 1	1,037
X. Other Land Transport	70	87 3	971
XI Shipping, etc.	198	88 0(b)	980
XII. Pastoral, Agricultural, etc. ..	72	87 1(c)	969
XIII. Domestic, Hotels, etc.	114	80 6(d)	896
XIV. Miscellaneous	233	84 11	945
All Groups	3,948	89 10	1,000(a)

(a) Weighted average. (b) Including the value of victualling and accommodation where supplied. (c) Including the value of board and lodging, where supplied. (d) Including the value of board and lodging, where supplied, as follows:—In Sydney 11s. to 23s. (according to class of establishment); in Melbourne 20s.; in Brisbane 17s.; in Adelaide 16s. (Restaurants) and 15s. (Hotels and Clubs); in Perth 22s.; and in Hobart 15s. per week.

From the above table it may be seen that the highest weighted average wage was that paid in Group VIII. (Mining), 103s. 10d. per week, or approximately 16 per cent. above the weighted average for all groups. The rates of wage range from 103s. 10d. per week down to 80s. 6d. per week, in Group XIII. (Hotels, etc.), which is approximately 10 per cent. below the average of all groups.

4. **Weighted Average Nominal Weekly Rate of Wage Payable to Adult Female Workers in each State, 31st December, 1920.**—The following table shews the weighted average nominal weekly rate of wage payable to adult female workers for a full week's work in each State and the Commonwealth. Taking the average for the whole Commonwealth as the base (=1,000), index-numbers for each State are also shewn:—

WEIGHTED AVERAGE NOMINAL WEEKLY RATE OF WAGE PAYABLE TO ADULT FEMALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN EACH STATE AND COMMONWEALTH, 31st DECEMBER, 1920.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Number of Occupations included	65	87	27	47	24	28	308
Weighted Average Weekly Rate of Wage	46s. 0d.	43s. 1d.	44s. 11d.	40s. 7d.	52s. 11d.	41s. 10d.	44s. 6d.(a)
Index-Numbers	1,035	969	1,002	913	1,189	940	1,000(a)

(a) Weighted average.

It will be seen that the weighted average nominal weekly rate of wage for adult female workers was highest in Western Australia, followed in the order named by New South Wales, Queensland, Victoria, Tasmania, and South Australia.

5. **Weighted Average Nominal Weekly Rates of Wage Payable to Adult Female Workers in Industrial Groups, 31st December, 1920.**—The following table gives separate particulars regarding the weighted average nominal weekly rates of wage of females in the chief industrial groups in which they are employed, and also shews the weighted average for all groups combined. Index-numbers based on the average for the Commonwealth as the base (=1,000) are also given :—

WEIGHTED AVERAGE NOMINAL WEEKLY RATES OF WAGE PAYABLE TO ADULT FEMALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN INDUSTRIAL GROUPS, 31st DECEMBER, 1920.

Industrial Group.	No. of Rates Included.	Weighted Average Weekly Wage (for Full Week's Work).	Index-Numbers.
		s. *d.*	
III. Food, Drink, etc.	35	41 10	940
IV. Clothing, Boots, etc.	114	43 5	976
I., II., V., VI., All Other Manufacturing combined	84	44 0	989
XIII. Domestic, Hotels, etc.	57	46 3(*a*)	1,039
XIV. Shop Assistants, Clerks, etc. ..	18	46 2	1,038
All Groups	308	44 6	1,000(*b*)

(*a*) See footnote (*d*) on preceding page. (*b*) Weighted average.

6. **Relative Hours of Labour and Hourly Rates of Wage, 1914 to 1920.**—The rates of wage referred to in the preceding paragraphs of this section relate to the minimum rates payable for a full week's work. It should be observed, however, that the number of hours which constitutes a full week's work differs in many instances, not only as between various trades and occupations in each individual State, but also as between the same trades and occupations in the several States. In order to secure what may be for some purposes a more adequate standard of comparison, it is desirable to reduce the comparison to a common basis, viz., the rate of wage per hour. Particulars are given in the following table, classified according to States, for male and female occupations separately, at the end of the year 1914, and from 1916–20. These particulars relate to (*a*) the weighted average nominal weekly wage, (*b*) the weighted average number of working hours constituting a full week's work, and (*c*) the weighted average hourly wage. It should be observed that the weighted average weekly wage relates to all industrial groups combined, and includes the value of board and lodging, where supplied, in land occupations, and the value of victualling in marine occupations*; whereas the number of working hours and the hourly wage relate to all industrial groups other than Groups XI. (Shipping), and XII. (Agricultural, Pastoral, etc.). Owing to the fact that many of the occupations included in these two groups are of a casual or seasonal nature, and that the hours of labour in these occupations are not generally regulated either by awards or determinations of industrial tribunals or otherwise, the necessary data for the computation of the average number of working hours are not available.

The general effect of reducing the rates of wage to a common basis (*i.e.*, per hour) is to decrease the amount of the difference shewn when comparing the weekly wage in the several States.

* See footnote to table on page 1001.

WEIGHTED AVERAGE NOMINAL WEEKLY AND HOURLY RATES OF WAGE PAYABLE TO ADULT WORKERS, AND WEEKLY HOURS OF LABOUR, 31st DECEMBER, 1914 TO 1920.

Date.	Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
	MALE WORKERS.							
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
31st Dec., 1914	Weekly Wage(a) ..	56 2	54 7	53 5	54 5	62 10	52 8	55 7
	Working Hours(b) ..	49.35	48.66	48.64	48.59	48.18	48.62	48.87
	Hourly Wage(b) ..	1/2	1/1½	1/1¼	1/1½	1/4¼	1/1	1/2
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
31st Dec., 1916	Weekly Wage(a) ..	61 11	58 10	60 4	59 0	65 2	57 0	60 8
	Working Hours(b) ..	48.51	48.22	48.27	48.14	48.11	48.55	48.33
	Hourly Wage(b) ..	1/3¼	1/3	1/3¼	1/3	1/4½	1/2	1/3½
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
31st Dec., 1917	Weekly Wage(a) ..	64 5	63 0	65 3	63 1	68 11	59 7	64 2
	Working Hours(b) ..	48.41	48.14	47.19	47.82	48.10	48.48	48.10
	Hourly Wage(b) ..	1/3½	1/4	1/5	1/4	1/5½	1/3	1/4½
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
31st Dec., 1918	Weekly Wage(a) ..	65 11	65 6	69 8	65 6	70 4	61 2	66 5
	Working Hours(b) ..	48.16	47.98	46.90	47.77	47.69	48.39	47.88
	Hourly Wage(b) ..	1/4½	1/4½	1/6	1/4½	1/6	1/3½	1/5
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
31st Dec., 1919	Weekly Wage(a) ..	76 9	72 0	78 7	70 5	77 8	69 0	74 11
	Working Hours(b) ..	47.77	47.36	46.19	47.58	47.60	47.89	47.41
	Hourly Wage(b) ..	1/7½	1/6½	1/9	1/5½	1/7½	1/5½	1/7½
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
31st Dec., 1920	Weekly Wage(a) ..	94 0	86 1	91 6	82 8	89 9	85 9	89 10
	Working Hours(b) ..	47.51	47.19	45.63	47.29	46.53	47.33	47.07
	Hourly Wage(b) ..	2/-	1/10	2/0½	1/8½	1/11½	1/10	1/11
	FEMALE WORKERS.							
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
31st Dec., 1914	Weekly Wage ..	26 10	27 9	27 1	24 1	37 4	25 10	27 5
	Working Hours ..	49.34	48.54	49.82	49.33	49.44	50.76	49.11
	Hourly Wage ..	-/6½	-/6¾	-/6½	-/5¾	-/9	-/6	-/6¾
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
31st Dec., 1916	Weekly Wage ..	28 7	28 5	27 3	24 10	38 10	28 3	28 5
	Working Hours ..	49.44	48.36	49.85	49.02	49.08	49.83	49.02
	Hourly Wage ..	-/7	-/7	-/6½	-/6	-/9½	-/6¾	-/7
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
31st Dec., 1917	Weekly Wage ..	30 5	30 4	30 5	27 9	38 10	28 5	30 5
	Working Hours ..	48.98	48.32	48.99	48.72	48.78	49.83	48.71
	Hourly Wage ..	-/7½	-/7½	-/7½	-/6¾	-/9½	-/6¾	-/7½
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
31st Dec., 1918	Weekly Wage ..	31 10	31 8	32 10	29 5	38 10	28 9	31 9
	Working Hours ..	48.85	48.32	48.37	48.73	48.78	49.83	48.42
	Hourly Wage ..	-/8	-/7¾	-/8½	-/7½	-/9½	-/7	-/7¾
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
31st Dec., 1919	Weekly Wage ..	40 0	34 5	38 4	33 3	43 7	38 0	37 1
	Working Hours ..	47.53	47.63	46.76	47.67	48.12	49.28	47.54
	Hourly Wage ..	-/10	-/8¼	-/9¼	-/8½	-/11	-/8	-/9¼
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
31st Dec., 1920	Weekly Wage ..	46 0	43 1	44 11	40 7	52 11	41 10	44 6
	Working Hours ..	46.83	46.23	46.09	46.51	46.20	47.86	46.47
	Hourly Wage ..	-/11½	-/11¼	-/11¾	-/10½	1/1¾	-/10½	-/11½

(a) Weighted average weekly wage in all industrial groups combined. (b) Weighted average working hours per week, and computed hourly rates of wage for all industrial groups excepting Groups XI. (Shipping, etc.), and XII. (Agricultural, Pastoral, etc.). Working hours have not been generally regulated by industrial tribunals for occupations classified in industrial groups XI. and XII.

From the foregoing table it may be seen that there has been a diminution in each of the States in the number of working hours constituting a full week's work for male and female occupations. The effect of these changes on the hourly rate of wage as compared with the general increase in the weekly wage is readily seen from the comparative index-numbers given in the following table. In each instance (male and female occupations separately) the basis taken is the weighted average for the Commonwealth at the 30th April, 1914, as base (=1,000).

RELATIVE INDEX-NUMBERS FOR WEEKLY AND HOURLY WEIGHTED AVERAGE WAGE, 30th APRIL, 1914, 31st DECEMBER, 1914 TO 1920.

NOTE.—Weighted Average for the Commonwealth at 30th April, 1914, as base (=1,000).

Date.	Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
	MALE WORKERS.							
30th April, 1914 ..	Weekly Wage ..	1,011	984	955	986	1,128	952	1,000
	Hourly Wage ..	998	980	963	991	1,170	933	1,000
31st Dec., 1914 ..	Weekly Wage ..	1,019	990	969	988	1,140	956	1,008
	Hourly Wage ..	1,010	990	985	993	1,173	936	1,009
31st Dec., 1916 ..	Weekly Wage ..	1,123	1,067	1,095	1,071	1,182	1,034	1,100
	Hourly Wage ..	1,127	1,074	1,097	1,075	1,206	1,011	1,105
31st Dec., 1917 ..	Weekly Wage ..	1,168	1,143	1,183	1,144	1,250	1,081	1,164
	Hourly Wage ..	1,162	1,138	1,209	1,145	1,252	1,079	1,164
31st Dec., 1918 ..	Weekly Wage ..	1,196	1,189	1,261	1,188	1,276	1,110	1,205
	Hourly Wage ..	1,196	1,192	1,297	1,176	1,282	1,120	1,210
31st Dec., 1919 ..	Weekly Wage ..	1,393	1,306	1,426	1,277	1,409	1,251	1,359
	Hourly Wage ..	1,405	1,322	1,512	1,262	1,408	1,259	1,378
31st Dec., 1920 ..	Weekly Wage ..	1,706	1,561	1,659	1,500	1,628	1,556	1,629
	Hourly Wage ..	1,725	1,570	1,753	1,492	1,686	1,567	1,655
	FEMALE WORKERS.							
30th April, 1914 ..	Weekly Wage ..	984	1,006	989	885	1,373	950	1,000
	Hourly Wage ..	980	1,021	976	881	1,386	920	1,000
31st Dec., 1914 ..	Weekly Wage ..	987	1,022	996	885	1,373	950	1,008
	Hourly Wage ..	983	1,035	983	881	1,364	920	1,009
31st Dec., 1916 ..	Weekly Wage ..	1,050	1,047	1,004	915	1,429	1,041	1,047
	Hourly Wage ..	1,044	1,063	991	916	1,431	1,027	1,048
31st Dec., 1917 ..	Weekly Wage ..	1,119	1,116	1,120	1,020	1,430	1,045	1,121
	Hourly Wage ..	1,122	1,134	1,122	1,027	1,440	1,029	1,130
31st Dec., 1918 ..	Weekly Wage ..	1,173	1,151	1,208	1,064	1,430	1,059	1,168
	Hourly Wage ..	1,191	1,169	1,226	1,092	1,426	1,044	1,185
31st Dec., 1919 ..	Weekly Wage ..	1,474	1,268	1,412	1,225	1,605	1,215	1,365
	Hourly Wage ..	1,523	1,307	1,483	1,262	1,639	1,211	1,410
31st Dec., 1920 ..	Weekly Wage ..	1,696	1,586	1,652	1,495	1,947	1,540	1,637
	Hourly Wage ..	1,777	1,685	1,761	1,578	2,069	1,580	1,730

§ 4. Variations in Nominal and Effective Wages.

1. **Variations in Wage Index-Numbers in Various Industries, 1901 to 1920.**—The total number of different occupations for which particulars as to wages are available back to 1901 is 652. In 1913 the number of occupations was increased to 3,948. These wages relate generally to award rates, but in a few cases, more especially for the earlier years, when there were no award rates fixed, predominant or most frequent rates have been taken. The occupations have been distributed over the fourteen industrial groups

already specified, and index-numbers computed for each group for the whole Commonwealth. The wages refer generally to the capital town of each State, but in industries such as mining and agriculture, the rates in the more important centres have been taken.

The following table shews wage index-numbers for the whole Commonwealth in each of the fourteen industrial groups during the years specified. *Rates of wage for females* are not included. The index-numbers are "weighted" according to the number of persons engaged in different industrial groups in each State and the Commonwealth (see Report No. 11, page 76). In the tables of index-numbers given in this Section, the weighted average wage in 1911 for all States or industries, as the case may be, is taken as base (= 1,000). The result is that the index-numbers are comparable in all respects, that is to say, they shew not only the variations in wages from year to year in each State or industrial group, but they also furnish comparisons as to the relative wages in each State or industry, either in any particular year, or as between one year and another, and one State or industry and another.

VARIATIONS IN NOMINAL WAGE INDEX-NUMBERS IN DIFFERENT INDUSTRIES IN THE COMMONWEALTH, 1901 TO 1920. (WEIGHTED AVERAGE FOR ALL GROUPS IN 1911 = 1,000.)

Particulars.	Number of Occupations included. 1901 to 1912.	Number of Occupations included. 1913 to 1920.	1901.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
I. Wood, Furniture, etc. ..	27	270	1,019	1,125	1,144	(b) 1,142	1,161	1,174	1,245	1,288	1,345	1,479	1,855
II. Engineering, Metal Works, etc. ..	101	636	945	1,064	1,104	1,113	1,127	1,174	1,211	1,268	1,340	1,512	1,803
III. Food, Drink, etc.	34	576	871	991	1,038	1,074	1,085	1,127	1,194	1,241	1,288	1,473	1,742
IV. Clothing, Hats, Boots, etc. ..	13	124	708	981	990	1,019	1,034	1,037	1,104	1,163	1,198	1,433	1,687
V. Books, Printing, etc. ..	25	205	996	1,149	1,188	1,234	1,246	1,259	1,328	1,376	1,446	1,576	1,941
VI. Other Manufacturing ..	102	875	907	1,012	1,037	1,076	1,093	1,125	1,203	1,245	1,289	1,470	1,736
VII. Building ..	67	190	1,050	1,213	1,245	1,270	1,276	1,285	1,359	1,413	1,449	1,554	1,866
VIII. Mining, Quarries, etc. ..	71	161	1,067	1,194	1,216	1,270	1,272	1,299	1,420	1,528	1,532	1,724	2,026
IX. Rail and Tram Services ..	68	224	1,021	1,113	1,164	1,165	1,165	1,187	1,236	1,286	1,345	1,532	1,816
X. Other Land Transport ..	9	70	795	910	993	996	1,026	1,041	1,128	1,210	1,237	1,431	1,702
XI. Shipping, etc. ..	74	198	751	871	942	953	972	1,026	1,153	1,194	1,257	1,518	1,716
XII. Agriculture, Pastoral, etc. ..	8	72	627	839	944	965	965	969	1,073	1,192	1,231	1,370	1,699
XIII. Domestic, Hotels, etc. ..	17	114	598	887	894	918	935	948	995	1,052	1,104	1,338	1,671
XIV. Miscellaneous ..	36	233	759	929	1,015	1,045	1,054	1,065	1,137	1,185	1,234	1,389	1,656
All Groups (a) ..	652	3,948	848	1,000	1,051	1,076	1,085	1,102	1,184	1,252	1,296	1,462	1,752

NOTE.—The figures in the above table are comparable both horizontally and vertically.

(a) Weighted average: see graph on page 1031 hereof. (b) The decrease in this group is due to a reduction in the award rates in the furniture trade resulting from an appeal made by employers.

It may be seen that the index-numbers increased during the whole period under review from 848 in 1901 to 1,000 in 1911, 1,051 in 1912, and 1,752 in 1920.

2. *Variations in Wage Index-Numbers in Different States, 1901 to 1920.*—The following table shews the progress in rates of wage for all industries in each State, the weighted average wage for the Commonwealth in 1911 being taken as the base (=1,000). These results are based generally upon rates of wage prevailing in the capital town of each State, but in certain industries, such as mining, rates are necessarily taken for places other than the capital towns.

VARIATIONS IN NOMINAL WAGE INDEX-NUMBERS IN DIFFERENT STATES, 1901 TO 1920.

(WEIGHTED AVERAGE WAGE FOR COMMONWEALTH IN 1911=1,000.)

States.	Number of Occupations included. 1901 to 1912.	Number of Occupations included. 1913 to 1920.	1901.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
New South Wales	158	874	856	968	1,003	1,058	1,088	1,096	1,124	1,208	1,257	1,286	1,408	1,835
Victoria ..	150	909	796	924	985	1,038	1,056	1,065	1,078	1,148	1,220	1,278	1,404	1,679
Queensland ..	87	627	901	960	997	1,010	1,027	1,042	1,060	1,177	1,273	1,356	1,534	1,785
South Australia	134	567	810	951	1,013	1,048	1,061	1,062	1,067	1,151	1,231	1,278	1,372	1,613
Western Australia	69	489	1,052	1,116	1,152	1,191	1,214	1,226	1,236	1,272	1,345	1,372	1,516	1,751
Tasmania ..	54	482	719	772	799	934	1,025	1,028	1,039	1,112	1,163	1,193	1,346	1,674
Commonwealth(a)	652	3,948	848	955	1,000	1,051	1,076	1,085	1,102	1,184	1,252	1,296	1,462	1,752

(a) Weighted average.

NOTE.—The figures in the above table are comparable both horizontally and vertically.

The significance of the above figures since 1906 can be better appreciated by reference to the graph on page 1031, which shews not only variations in wages in each State from year to year, but also the difference in wage level as between the several States. From this graph it is clearly seen that, excluding Western Australia, the difference between nominal wages in the several States has decreased very considerably since 1906. This difference is shown at any point by the vertical distance between the graphs. Wages in Queensland and New South Wales have increased since 1914 at a higher rate than in any other State, and the general level in these States is now higher than in any other State. The graphs for Victoria and South Australia lie very close together throughout the period. In Tasmania the first determination under the Wages Boards Acts 1910 and 1911 came into force in 1911. Since then wages in that State have increased rapidly, and their general level is now near the average for the Commonwealth.

3. Variations in Effective Wages.—In order to obtain an accurate measure of the progress in the material welfare of wage-earners, regard must be had to the purchasing-power of wages, and the index-numbers based merely upon nominal rates of wage must consequently be subject to some modification, inasmuch as they take no account of variations in the purchasing-power of money. In computing these effective wage index-numbers, the nominal wage index-numbers given in sub-section 2 hereof have been divided by the purchasing-power-of-money index-numbers in Section IV., paragraph 5 of Labour Report No. 11, p. 30. The resulting index-numbers shew for each State and for the Commonwealth for the years specified the variations in *effective* wages.

The following table shews the effective wage index-numbers for each State for each of the years indicated from 1901 to 1920:—

VARIATION IN EFFECTIVE WAGES IN EACH STATE AND COMMONWEALTH, 1901 TO 1920.(a)

Particulars.	1901.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
New South Wales ..	961	973	973	922	924	909	850	867	893	902	943	994
Victoria	915	961	1,037	981	1,007	964	844	877	950	947	948	939
Queensland..	1,172	1,095	1,090	1,032	1,060	1,045	912	991	1,078	1,083	1,064	1,085
South Australia	949	943	957	906	947	929	847	896	969	957	935	919
Western Australia.. ..	1,024	1,091	1,023	1,032	1,076	1,073	1,011	1,005	1,079	1,107	1,068	1,083
Tasmania	827	812	838	896	976	943	843	870	894	890	900	911
Commonwealth ..	964	985	1,000	955	975	952	862	894	950	952	968	982

(a) As to the effect in abnormal periods, see Labour Report No. 6, pp. 20–2, Section IV., par. 3.

The figures in the preceding table from the year 1907 onwards are shown in the graph on page 1032. A comparison between this graph and the preceding one shews that the difference between nominal and effective wages is very marked. In the first place, the whole nature of the graphs is entirely different. Instead of having a series of lines shewing a practically continuous and rapid upward trend, the effective wages shew (except for Tasmania) a series of fluctuating points, in which no very marked tendency is immediately discernible. It will be seen that, generally speaking, the years 1907, 1909, 1910, 1911, 1913, 1916, 1917, 1918 and 1919 were marked by increases in effective wages, but that in each of the years 1908, 1912, 1914 and 1915, there were rapid decreases. In 1920 effective wages decreased in Victoria and South Australia, and increased in the remaining States. In each of these years in which effective wages declined there was a rapid increase in cost of food and groceries, which was not, immediately, compensated by increased wages. Since 1911 the effect of prices on nominal wages has caused serious fluctuations in the effective wage, *e.g.*, the effective wage index-number for the Commonwealth for the year 1915 (862) was 13.8 per cent. below that of 1911. From 1915 to 1920 the effective wage index-number rose by 13.9 per cent. to 982, which, however, still leaves the average effective wage for the Commonwealth lower than in 1911 by 1.8 per cent. In the next table index-numbers are given for nominal wages and for the purchasing-power of money, together with the effective wage index-number derived therefrom.

One important feature common to both graphs (nominal and effective wages) is the manner in which the graphs for the individual States have, on the whole, approached more closely together. With the adoption of rates of wage fixed according to the relative purchasing-power of money, it appears probable that this tendency will continue in the future.

4. Variations in Effective Wages and Standard of Comfort, 1901 to 1920.—In the preceding paragraph particulars are given as to variations in effective wages in each State, due allowance having been made for variations in purchasing-power of money, though not for unemployment. Attention has also been drawn to the limitations to which they are subject in abnormal times.

For years prior to 1913 the data available as to unemployment are so meagre that comparative results allowing for variations both in purchasing-power of money and in unemployment cannot be accurately computed for the several States. In the subjoined table, however, the percentage of unemployment for the whole Commonwealth at the end of the years specified has been used in order to obtain results shewing the variations in unemployment upon effective wages. Column I. shews the nominal rate of wage index-numbers, and Column II. the relative percentages unemployed. Applying these percentages to the numbers shewn in Column I., and deducting the results from each corresponding index-number, so as to allow for relative loss of time, the figures in Column III. are obtained. These figures are then re-computed with the year 1911 as base, and are shewn in Column IV. In Column V. the purchasing-power-of-money index-numbers are shewn, and in Columns VI. and VII. the effective wage index-numbers are given, firstly, for full work, and, secondly, allowing for lost time. These are obtained by dividing the figures in Columns I. and IV., respectively, by the corresponding figures in Column V. The resulting index-numbers shew for the Commonwealth, for the years specified, the variations in *effective* wages, or in what may be called the "standard of comfort."*

A comparison between the figures in Columns I. and VI. shews the relation between the nominal rates of wage and the purchasing efficiency of these rates. The figures in Column VII. shew variations in *effective* wages after allowing not only for variations in purchasing-power of money, but also for the relative extent of unemployment.

* This expression must not be confused with "standard of living." A change in the standard of living necessarily involves a change in regimen (see Labour Report No. 1), that is, a change in the nature or in the relative quantity of commodities purchased, or both. A change in the "standard of comfort" merely implies a variation in effective wages, which variation may, or may not, result in, or be accompanied by, a change in the "standard of living."

UNEMPLOYMENT, PURCHASING-POWER-OF-MONEY AND NOMINAL AND EFFECTIVE WAGE-INDEX NUMBERS, 1901 TO 1920. (a)

Year.	I. Nominal Wage Index-Numbers.	II. Percentage Unemployed.	Rates of Wage Index-Numbers, allowing for Lost Time.		V. Purchasing-power-of-money Index-Numbers.	Effective Wage Index-Numbers.	
			III. Actual.	IV. Re-computed. (1911 = 1,000).		VI. Full Work.	VII. Allowing for Unemployment.
1901 ..	848	6.6	793	832	880	964	945
1906 ..	866	6.7	808	848	902	960	940
1907 ..	893	5.7	842	884	897	996	986
1908 ..	900	6.0	846	888	951	946	934
1909 ..	923	5.8	870	913	948	974	963
1910 ..	955	5.6	901	945	970	985	974
1911 ..	**1,000**	4.7	953	**1,000**	**1,000**	**1,000**	**1,000**
1912 ..	1,051	5.5	993	1,042	1,101	955	946
1913 ..	1,076	5.3	1,021	1,071	1,104	975	970
1914 ..	1,085	11.0	966	1,014	1,140	952	889
1915 ..	1,102	6.8	1,027	1,078	1,278	862	844
1916 ..	1,184	6.7	1,105	1,159	1,324	894	875
1917 ..	1,252	7.4	1,159	1,216	1,318	950	923
1918 ..	1,296	5.5	1,225	1,285	1,362	952	943
1919 ..	1,462	5.2	1,386	1,454	1,510	968	963
1920 ..	1,752	7.8	1,615	1,695	1,785	982	950

(a) As to the effect in abnormal periods, see Section IV., par. 3, of Labour Report No. 6.

During the period 1901–20, while the nominal wage index-number rose from 848 to 1,752, an increase of 106.7 per cent., prices rose from 880 to 1,785 or by 102.8 per cent., the net result therefore being that effective full time wages rose by only 0.5 per cent. Compared with 1911, effective wages shew a fall of 1.8 per cent., although nominal wages increased by 75.2 per cent.

§ 5. Changes in Rates of Wage.

1. **General.**—The collection of information regarding changes in rates of wage throughout the Commonwealth dates from the 1st January, 1913.

(i) *Definition of a Change in Rate of Wage.* For the purpose of these statistics a change in rate of wage is defined as a change in the weekly rates of remuneration of a certain class of employees, apart from any change in the nature of the work performed or apart from any revision of rates due to increased length of service or experience. It is obvious that under this definition certain classes of changes are excluded, such, for example, as (a) changes in rates of pay due to promotion, progressive increments, or, on the other hand, to reduction in pay or grade to inefficient workers, and (b) changes in average earnings in an occupation due to a change in the proportions which higher paid classes of workers bear to lower paid classes. Bonuses to employees have not been taken into account in the tabulations. Each single change recorded relates to a change in the rates of wage affected in a specific industry or calling, and includes any and all changes to workers in that industry, irrespective of the different number of separate occupations

or trades affected. Further, it should be observed that in some instances a change may relate to the employees of a single employer or to those of a number of employers, according to the instrument or method operating to bring about the change.

(ii) *Sources of Information.* Primary information merely as to the fact that a change in rate of wage has occurred is obtained through the following channels:—(a) the Industrial Registrar or Chief Inspector of Factories in each State; (b) Reports from Labour Agents and Correspondents; (c) Quarterly reports from Secretaries of Trade Unions; (d) Returns relating to industrial disputes which resulted in changes in rates of wage; (e) Reports in newspapers, labour and trade reviews, and other publications.

(iii) *Collection of Particulars concerning Changes.* On the occurrence of a change in rate of wage, forms* (prescribed under the Census and Statistics Act 1905) are issued to employers and employers' associations (if any) and to the secretaries of the trade unions, the members of which are affected by the change. The particulars which have to be inserted in these forms furnish information regarding the occupations of the workers affected, the number of workers in each occupation, the rates of wage paid before and after the change, the locality affected, and the date on which the change took effect. Information must also be furnished regarding employers and employers' associations concerned (if any), and the method by which the change was effected.

When the forms are returned from the various persons who are required to complete them, the returns are checked and compared with each other and with copies of awards, determinations, and agreements. In all cases when the information furnished on the forms is incomplete or unsatisfactory, further inquiries are made, and the figures checked by reference to census results, industrial statistics, factory reports, etc.

2. Comparative Summary of Changes in Rates of Wage in each State, 1913–1920.—The following table gives particulars of changes which occurred in each State of the Commonwealth during the years specified. As regards the number of persons affected, the particulars given refer to the total number of persons ordinarily engaged in the various industries. The results as to the amount of increase in wages are computed for a full week's work for all persons ordinarily engaged in the several industries and occupations affected, and in cases of changes in existing minimum rates under awards or determinations of industrial tribunals, it has ordinarily been assumed (in the absence of any definite information to the contrary) that the whole of the employees in each occupation received the minimum rates of wage before and after the change.

It should be clearly understood that the figures given in the third division of the following table (amount of increase per week) do not relate to the increase each week, but only to the increase in a single week on the assumption that the full number of persons ordinarily engaged in the particular trade or occupation affected by the change were employed during that week. It is obvious, therefore, that the aggregate effect per annum cannot be obtained without making due allowance for unemployment and for occupations in which employment is seasonal or intermittent. It is also obvious that since unemployment and activity in all branches of industry may vary from year to year, and in many branches from season to season also, no accurate estimate of the actual effect of the changes in the total amount of wages received or paid per annum can be made until the determining factors have been investigated. These factors are (a) the amount of unemployment, and (b) the period of employment in seasonal industries.

It should be observed that changes brought about by awards and agreements under the Commonwealth Conciliation and Arbitration Act, the Arbitration (Public Service) Act, and the Industrial Peace Act 1920 are necessarily included hereunder as changes in each State to which such awards and agreements apply. The average increase per head per week is computed to the nearest penny.

* Since these forms are issued under the authority of the Census and Statistics Act 1905, it is compulsory for prescribed persons to furnish the information required.

CHANGES IN RATES OF WAGE.—NUMBER AND EFFECT OF CHANGES IN EACH STATE AND TERRITORY, 1913 TO 1920.

Particulars.		N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	N.T.	(a) All States.	C'wealth.
No. of Changes ..	1913	149	81	41	26	20	12	..	..	329
	1914	165	69	50	18	42	19	..	1	364
	1916	381	168	134	98	42	37	4	6	870
	1917	201	106	142	78	55	38	16	1	637
	1918	229	201	236	113	63	46	4	4	896
	1919	457	218	216	136	112	128	13	4	1,284
	1920	**734**	**354**	**300**	**231**	**209**	**154**	**7**	**10**	**1,999**
No. of Persons Affected	1913	89,618	49,254	16,645	4,574	3,036	3,005	..	..	166,132
	1914	56,469	29,876	20,198	5,624	8,399	4,262	..	90	125,218
	1916	242,721	119,878	72,079	40,925	5,848	7,232	258	3,546	492,487
	1917	101,158	68,272	72,843	20,209	12,997	5,288	1,143	11,000	292,910
	1918	146,399	110,027	74,174	16,239	9,871	3,631	624	616	361,581
	1919	280,031	125,603	110,627	35,377	26,673	16,108	1,287	2,095	603,891
	1920	**454,610**	**258,211**	**145,464**	**76,605**	**55,489**	**28,317**	**703**	**7,887**	**1,027,286**
		£	£	£	£	£	£	£	£	£
Total Net Amount of Increase per Week	1913	21,780	9,880	3,702	1,279	428	635	..	..	37,713
	1914	13,558	6,682	5,128	1,941	2,429	804	..	143	30,685
	1916	56,875	30,566	40,451	9,930	1,440	1,980	88	1,593	142,923
	1917	28,896	15,129	20,063	6,070	3,407	1,987	635	4,800	81,007
	1918	32,194	25,514	19,699	8,885	2,183	1,323	273	239	85,260
	1919	137,642	43,930	48,718	11,989	10,249	7,350	618	949	256,445
	1920	**228,186**	**119,706**	**69,748**	**30,316**	**25,195**	**14,593**	**684**	**6,280**	**494,708**
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Average Increase per Head per Week ..	1913	4 10	4 0	4 5	5 7	2 10	4 3	..	..	4 6
	1914	4 10	4 6	5 1	6 11	5 9	3 9	..	7 4	4 11
	1916	4 8	5 1	11 3	4 10	4 11	5 6	6 10	9 0	5 10
	1917	5 9	4 5	5 6	6 0	5 3	7 6	11 1	8 9	5 6
	1918	4 5	4 8	5 4	4 9	4 4	7 3	8 9	7 9	4 9
	1919	9 10	7 0	7 6	6 9	7 8	9 2	9 7	9 1	8 6
	1920	**10 0**	**9 3**	**9 7**	**7 11**	**9 1**	**10 4**	**19 6**	**15 11**	**9 8**

(a) Changes recorded in this column are common to all States, as the particulars relating to the number of workpeople affected and the net amount of increase per week in each State were not ascertainable.

In point of number of changes in each State, New South Wales was first, Victoria second, and Queensland third, in each of the years 1913 to 1916. During the year 1917 the number of changes in Queensland exceeded the number recorded in Victoria, while during the year 1918 the number of changes in Queensland was greater than the number recorded as having taken place in New South Wales. It will be seen from the table that the number of changes in rates of wage recorded during the year 1920 is higher in each State than during any previous year. The relative position of the States in regard to the numbers of changes effected, and also in regard to the numbers of workers affected in each year is, of course, largely due to the magnitude of the different industries and callings in which changes took place.

The number of workpeople who were affected by changes in rates of wage during the year 1920 was 1,027,286, and the total net amount of increase per week was £494,708, representing 9s. 8d. per head per week. These figures are greater than in any other year for which records are available, and indicate a widespread attempt to restore wages to their previous relation to the cost of living, *i.e.*, to regain the accustomed effective wage.

The table shews the net results of all changes made in the rates of wage, and includes a few instances in which the weekly wage was reduced. In 1920 eleven decreases were recorded. Six occurred in New South Wales, four in Western Australia, and one in Tasmania. The total number of workpeople affected by these changes was 2,845, and the amount of decrease per week was £728. Of these eleven decreases, three were caused by reduction in the weekly rate of wage owing to the number of working hours per week being reduced without a corresponding increase in the hourly rate of wage; five were due to lower rates for unskilled workers and employees at certain ages being inserted in awards which previously specified flat rates; while the other decreases were caused by awards shewing lower rates of wage than the ruling or predominant rates which were being paid prior to the awards or determinations coming into force. Therefore, of the 1,999 changes made in 1920, 1,988, or 99.45 per cent. gave increased rates of pay to 1,024,441 persons, representing 99.72 per cent. of the 1,027,286 persons affected by all changes during the year.

3. Number and Magnitude of Changes in Rates of Wage in the Commonwealth Classified according to Industrial Groups, 1913 to 1920.—*Total Workpeople (Male and Female) affected by Changes.* In the following table particulars are given of the number of changes, the number of persons (males and females) affected, and the total amount of increase per week, classified according to Industrial Groups throughout the Commonwealth during the years 1913 and 1917 to 1920:—

CHANGES IN RATES OF WAGE IN THE COMMONWEALTH ACCORDING TO INDUSTRIAL GROUPS, 1913 AND 1917 TO 1920.

Particulars.		Industrial Group.							
		I. Wood, Furniture, Timber, etc.	II. Engineering, Metal Works, etc.	III. Food, Drink, Tobacco, etc.	IV. Clothing, Hats, Boots, etc.	V. Books, Printing, etc.	VI. Other Manufacturing.	VII. Building.	VIII. Mines, Quarries, etc.
1913.									
Number of Changes	..	10	20	45	15	11	55	21	17
Number of Persons affected	..	7,975	6,594	17,428	11,727	4,602	17,110	19,237	6,112
Amount of increase per week	£	1,569	1,607	4,255	2,062	1,126	3,480	5,696	1,210
1917.									
Number of Changes	..	14	60	66	21	31	53	38	28
Number of Persons affected	..	10,495	16,994	30,515	25,652	6,386	12,685	11,426	25,022
Amount of increase per week	£	2,568	3,394	2,015	6,104	1,961	4,046	3,477	12,544
1918.									
Number of Changes	..	61	42	93	26	24	78	30	25
Number of Persons affected	..	14,651	31,804	32,411	23,215	8,707	15,160	17,419	14,285
Amount of increase per week	£	4,343	10,565	9,025	5,252	1,804	3,944	5,420	2,988
1919.									
Number of Changes	..	39	89	156	31	41	138	42	29
Number of Persons affected	..	13,616	44,183	72,603	26,905	9,335	50,530	19,053	34,501
Amount of increase per week	£	4,890	20,381	22,551	11,308	4,449	17,829	8,941	17,434
1920.									
Number of Changes	..	68	123	241	56	83	245	82	61
Number of Persons affected	..	44,732	74,853	81,876	55,345	19,757	71,671	61,552	47,665
Amount of increase per week	£	19,015	20,145	41,883	21,271	11,088	31,126	41,059	30,385

Particulars.		Industrial Group—*continued.*						
		IX. Rail and Tram Services.	X. Other Land Transport.	XI. Shipping, etc.	XII. Pastoral, Agricultural, etc.	XIII. Domestic, Hotels, etc.	XIV. Miscellaneous.	ALL GROUPS.(a)
1913.								
Number of Changes	..	16	12	19	3	9	59	312
Number of Persons affected	..	20,046	7,335	1,839	628	6,481	38,818	166,182
Amount of increase per week	£	3,219	2,324	543	436	1,922	8,264	37,719
1917.								
Number of Changes	..	50	19	25	10	15	144	574
Number of Persons affected	..	37,264	10,261	12,613	3,440	15,359	74,896	292,910
Amount of increase per week	£	12,711	3,054	5,629	1,096	3,720	15,668	81,007
1918.								
Number of Changes	..	38	25	38	6	23	270	779
Number of Persons affected	..	59,625	12,782	1,990	1,717	9,230	118,565	361,581
Amount of increase per week	£	10,320	2,155	719	350	2,167	26,178	85,280
1919.								
Number of Changes	..	74	37	59	11	49	373	1,168
Number of Persons affected	..	114,865	20,871	34,294	9,030	25,709	128,836	603,891
Amount of increase per week	£	56,872	8,701	18,168	5,739	7,620	50,562	256,445
1920.								
Number of Changes	..	82	52	76	19	55	461	1,724
Number of Persons affected	..	136,854	28,532	16,842	26,580	34,285	326,542	1,027,286
Amount of increase per week	£	54,959	11,605	11,871	20,701	12,258	158,842	494,798

(a) In this table an Industrial Award or Agreement under the Commonwealth Conciliation and Arbitration Act, the Arbitration (Public Service) Act, the Industrial Peace Act, or an Order of the War Precautions Coal Board is counted as one change only, although such Award, Agreement or Order may be operative in more than one State.

4. Changes in Rates of Wage in Male and Female Occupations—Number and Effect of Changes in each State, 1913–1920.—Included in the changes in rates of wage recorded in the tables on page 1011 are those which in the whole or part thereof affected female occupations. Particulars in respect to these changes in so far as they relate to the numbers of male and female workers affected, etc., are set out hereunder :—

CHANGES IN RATES OF WAGE.—MALE AND FEMALE OCCUPATIONS.—EFFECT OF CHANGES IN EACH STATE AND TERRITORY, 1913 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Terr.	All States.(a)	C'wealth.
				NUMBER OF MALE EMPLOYEES AFFECTED.					
1913	83,470	44,692	16,095	3,616	3,036	1,525	..	..	152,434
1914	48,773	25,644	19,628	5,624	7,616	4,232	..	390	111,907
1916	225,806	95,667	68,125	39,586	5,669	6,885	249	3,546	449,533
1917	82,001	48,136	63,066	16,844	12,788	4,759	1,143	11,000	240,337
1918	128,728	91,857	59,909	12,889	8,452	3,487	624	616	306,562
1919	253,077	106,389	99,167	32,162	24,185	13,906	1,287	2,025	532,198
1920	385,118	202,972	126,306	66,824	48,088	24,213	703	7,812	862,036
				NET AMOUNT OF INCREASE PER WEEK TO MALE EMPLOYEES.					
	£	£	£	£	£	£	£	£	£
1913	20,682	9,317	3,647	1,127	428	512	..	..	35,713
1914	12,158	6,146	5,055	1,941	2,157	797	..	143	28,397
1916	53,395	26,877	39,874	9,774	1,414	1,937	82	1,593	134,946
1917	25,773	11,080	17,106	5,244	3,329	1,878	635	4,800	69,845
1918	29,410	22,574	16,186	3,311	1,889	1,284	273	239	75,166
1919	132,237	38,115	38,200	10,690	9,560	6,560	618	920	236,900
1920	207,403	98,778	63,432	27,498	22,157	13,105	684	6,192	439,249
				AVERAGE INCREASE PER HEAD PER WEEK TO MALE EMPLOYEES.					
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1913	4 11	4 2	4 6	6 3	2 10	6 9	..	..	4 8
1914	5 0	4 10	5 2	6 11	5 8	3 9	..	7 4	5 1
1916	4 9	5 5	11 8	4 11	5 0	5 8	6 7	9 0	6 0
1917	6 3	5 7	5 5	6 3	5 2	7 11	11 1	8 9	5 10
1918	4 7	4 11	5 5	5 2	4 6	7 4	8 9	7 9	4 11
1919	10 5	7 2	7 8	6 8	7 11	9 5	9 7	9 1	8 11
1920	10 9	9 9	10 1	8 3	9 3	10 10	19 6	15 10	10 2
				NUMBER OF FEMALE EMPLOYEES AFFECTED.					
1913	6,148	4,562	550	958	..	1,480	..	..	13,698
1914	7,696	4,232	570	..	783	30	..	..	13,311
1916	16,915	20,211	3,954	1,339	179	347	9	..	42,954
1917	18,557	20,136	9,777	3,365	209	529	..	..	52,573
1918	17,671	18,170	14,265	3,350	1,419	144	..	..	55.019
1919	26,954	19;304	17,460	3,215	2,488	2,202	..	70	71,693
1920	69,492	55,239	19,158	9,781	7,401	4,104	..	75	165,250
				NET AMOUNT OF INCREASE PER WEEK TO FEMALE EMPLOYEES.					
	£	£	£	£	£	£	£	£	£
1913	1,107	563	55	152	..	123	..	..	2,000
1914	1,400	542	73	..	266	7	..	..	2,288
1916	3,480	3,689	577	156	26	43	6	..	7,977
1917	3,123	4,049	2,977	826	78	109	..	..	11,162
1918	2,784	2,940	3,513	574	244	39	..	..	10,094
1919	5,405	5,815	5,518	1,299	689	790	..	29	19,545
1920	20,783	20,928	6,316	2,818	3,038	1,488	..	88	55,459

NOTE.—For continuation of Table see next page.

(a) Changes recorded in this column are common to all States, as the particulars relating to the number of workpeople affected and the net amount of increase per week in each State were not ascertainable.

CHANGES IN RATES OF WAGE.—MALE AND FEMALE OCCUPATIONS.—EFFECT OF CHANGES IN EACH STATE AND TERRITORY, 1913 TO 1920—*continued.*

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Terr.	All States.(a)	C'wealth.
AVERAGE INCREASE PER HEAD PER WEEK TO FEMALE EMPLOYEES.									
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1913	3 7	2 6	2 0	3 2	..	1 8	..	..	2 11
1914	3 8	2 7	2 7	..	6 9	4 8	..	..	3 5
1915	4 5	3 4	2 10	5 5	4 3	2 8	..	..	4 1
1916	4 1	3 8	2 11	2 4	2 11	2 6	13 4	..	3 9
1917	3 4	4 0	6 1	4 11	7 6	4 1	..	..	4 3
1918	3 2	3 3	4 11	3 5	3 6	5 5	..	..	3 8
1919	4 0	6 0	6 4	8 1	5 6	7 2	..	8 3	5 5
1920	6 0	7 7	6 7	5 9	8 3	7 3	..	23 6	6 9

(a) See footnote on previous page.

5. Methods by which Changes were Effected.—(i) *Changes in Rates of Wage and Methods by which Effected—Commonwealth, 1919 and 1920.* In the following table particulars are given for the Commonwealth of the number of changes in rates of wage, the number of workpeople affected, and the total net amount of increase to the weekly wage distribution brought about either without, or after, stoppage of work, during the years 1919 and 1920 respectively, as a result of the application of one or other of the methods set out in the tables :—

CHANGES IN RATES OF WAGE.—METHODS BY WHICH EFFECTED, 1919 AND 1920.

Methods by which Changes were Effected.	Without Stoppage of Work.			After Stoppage of Work.			All Changes.		
	No. of Changes.	No. of Work-people Affected.	Total Net Amount of Increase per Week.	No. of Changes.	No. of Work-people Affected.	Total Net Amount of Increase per Week.	No. of Changes.	No. of Work-people Affected.	Total Net Amount of Increase per Week.
1919.									
			£			£			£
By voluntary action of employers	36	10,285	4,373	..	..	..	36	10,285	4,373
By direct negotiations ..	202	77,096	25,796	36	7,439	3,141	238	84,535	28,937
By negotiations, intervention or assistance of third party(a) ..	18	35,716	20,553	11	9,333	3,680	29	45,049	24,233
By award of Court under Commonwealth Act(a)	38	67,166	29,108	4	575	476	42	67,741	29,584
By agreement registered under Commonwealth Act(a) ..	140	27,084	9,969	1	160	48	141	27,244	10,017
By award or determination under State Acts	580	336,805	148,087	2	820	545	582	337,625	148,632
By agreement registered under State Acts	98	31,232	10,574	2	180	95	100	31,412	10,669
Total(a)	1,112	585,384	248,460	56	18,507	7,985	1,168	603,891	256,445
1920.									
By voluntary action of employers	28	15,193	4,597	..	..	..	28	15,193	4,597
By direct negotiations ..	260	159,941	79,683	73	10,032	5,766	333	169,973	85,469
By negotiations, intervention or assistance of third party(a) ..	12	60,785	36,251	11	3,906	2,190	23	64,691	38,4[illegible]
By award of Court under Commonwealth Act(a)	63	75,020	24,812	1	28	*55*	64	75,048	24,807
By agreement registered under Commonwealth Act(a) ..	162	26,583	11,540	1	200	68	163	26,783	11,608
By award or determination under State Acts	971	645,927	314,244	7	2,156	1,484	978	648,083	315,728
By agreement registered under State Acts	133	27,300	13,899	2	265	159	135	27,565	14,058
Total(a)	1,629	1,010,699	485,026	95	16,587	[illegible]	1,724	1,027,286	494,708

(a) In this section of the table an Award or Agreement under the Commonwealth Conciliation and Arbitration Act, the Arbitration (Public Service) Act, the Industrial Peace Act, or an Order of the War Precautions Coal Board is counted as one change only, although such Award, Agreement, or Order may be operative in more than one State. (b) Decrease.

The total number of changes recorded during the year 1920 was 1,724, of which 978 or nearly 57 per cent. of the total number were brought about by award or determination under State Industrial Acts. The number of workpeople who were affected by these changes was 648,083, and the total amount of increase per week in wages was £315,728. Of these 978 changes, 478 occurred in New South Wales, 115 in Victoria, 218 in Queensland, 82 in South Australia, 33 in Western Australia, and 52 in Tasmania. The number of changes in rates of wage which were recorded as having been made by awards or variations of awards under the provisions of the Commonwealth Conciliation and Arbitration Act was 64, as compared with 42 during the previous year. Direct negotiations between representatives of employers and employees brought about 333 changes in rates of wage during the year. A large number of industrial agreements were filed under the provisions of the Commonwealth and State Acts during the twelve months under review. Ninety-five changes in rates of wage were arranged after stoppages of work. The number of workpeople affected by these changes was 16,587.

(ii) *Changes in Rates of Wage and Methods by which Effected—Commonwealth, 1913–1920.* Comparative particulars are contained in the following table of the total number and effect of all changes in rates of wage brought about throughout the Commonwealth during the years indicated, as a result of the application of one or other of the specified methods :—

CHANGES IN RATES OF WAGE, CLASSIFIED ACCORDING TO METHODS BY WHICH EFFECTED—COMMONWEALTH, 1913 AND 1917 TO 1920.

Particulars.	By Voluntary Action of Employers.	By Direct Negotiations.	By Negotiations, Intervention or Assistance of Third Party.	By Award of Court under C'wealth Act.	By Agreement Registered under C'wealth Act.	By Award or Determination under State Act.	By Agreement Registered under State Act.	TOTAL. (a)
1913.								
Number of Changes ..	2	30	4	3	24	213	36	312
Number of Workpeople affected	12,011	4,336	101	4,487	3,387	136,702	5,108	166,132
Amount of Increase per week £	1,543	1,120	20	1,679	831	31,328	1,192	37,713
1917.								
Number of Changes ..	24	75	14	35	28	310	88	574
Number of Workpeople affected	9,531	15,827	19,500	20,759	16,443	198,723	12,127	292,910
Amount of Increase per week £	3,097	5,429	10,996	7,654	5,579	44,477	3,775	81,007
1918.								
Number of Changes ..	14	132	3	39	142	354	95	779
Number of Workpeople affected	12,916	43,428	591	20,502	6,764	270,777	6,603	361,581
Amount of Increase per week £	2,396	9,473	334	4,481	1,683	64,642	2,251	85,260
1919.								
Number of Changes ..	36	238	29	42	141	582	100	1,168
Number of Workpeople affected	10,285	84,535	45,049	67,741	27,244	337,625	31,412	603,891
Amount of Increase per week £	4,373	28,937	24,233	29,584	10,017	148,632	10,669	256,445
1920.								
Number of Changes ..	28	333	23	64	163	978	135	1,724
Number of Workpeople affected	15,193	169,973	64,691	75,048	26,733	648,083	27,565	1,027,286
Amount of Increase per week £	4,597	85,469	38,441	24,807	11,608	315,728	14,058	494,708

(a) See footnote to table on page 1013.

It will be seen from the foregoing table that the greatest number of changes throughout the period under review was effected through the instrumentalities of the State Acts, though in relation to the total business the activities of the State organizations shew a decline from 80 per cent. of all changes in 1913 to 65 per cent. in 1920, while the changes made under the Commonwealth Acts have increased from 8.7 per cent. to 13.2 per cent. It is interesting to observe the very marked extent to which "direct negotiation" between parties has been resorted to in the later years. In 1913, only 30 changes, or less than 10 per cent. of the total, affecting only 2.6 per cent. of all persons concerned in the changes of that year, were brought about by direct negotiations, whereas in 1920, 333 changes (19 per cent.), affecting 169,973 persons, or 16 per cent. of the whole, resulted from this agency. It must be mentioned that, so far as possible, the effect of awards or agreements is recorded in the figures for the year in which such awards or agreements are made and filed. In certain cases, however, the awards or agreements are made retrospective as to the date on which the increased rate of wage has to be paid, while in others the particulars as to the number of workpeople affected and the effect of the change are difficult to ascertain.

§ 6. Industrial Disputes.

1. General.—Information with regard to the collection of particulars and methods of tabulation of industrial disputes involving stoppage of work has appeared in previous issues of the Year Book, and is also given in the Annual Reports of the Labour and Industrial Branch of this Bureau.

In the following tabulations particulars are included only with respect to the industrial disputes which commenced during any calendar year.* This course requires the elimination of such data as relate to disputes which commenced during an earlier period, but which remained unsettled during some portion of the succeeding year. On the other hand it necessitates the inclusion of the number of working days and wages lost during the following year in connexion with disputes commenced during the calendar year to which the statistics relate.

2. Comparative Summary of Disputes (involving Stoppage of Work), 1913 to 1920.—The systematic collection of information as to industrial disputes (causing a stoppage of work) throughout the Commonwealth was first undertaken as from the 1st January, 1913, and particulars concerning disputes occurring during the year 1913 were published in Labour Report No. 5. The following table gives particulars of the number of industrial disputes which began in various years from 1913 to 1920, together with the number of workpeople involved, the number of working days lost, and the total estimated loss in wages in each State and Territory comprising the Commonwealth:—

INDUSTRIAL DISPUTES IN EACH STATE AND TERRITORY.—COMPARATIVE PARTICULARS FOR 1913 AND 1917 TO 1920.

State or Territory.	Year.	No. of Disputes.	Establishments Involved in Disputes.	No. of Workpeople Involved. Directly.	Indirectly.	Total.	No. of Working Days Lost.	Total Estimated Loss in Wages.
								£
New South Wales	1913	134	466	25,647	14,364	40,011	468,957	216,368
	1917	296	918	118,515	15,508	134,023	3,308,869	1,929,405
	1918	138	182	24,417	8,624	33,041	181,639	112,894
	1919	267	678	64,956	35,040	99,996	4,324,656	2,856,259
	1920	349	650	68,033	22,349	90,382	587,156	432,988
Victoria	1913	29	63	4,151	2,026	6,177	85,212	35,744
	1917	52	636	15,976	2,114	18,090	760,410	378,946
	1918	33	190	4,235	1,513	5,748	165,020	99,346
	1919	62	372	15,169	7,437	22,606	733,333	392,796
	1920	53	609	15,274	24,534	39,808	783,286	466,244
Queensland	1913	17	20	1,781	225	2,006	55,288	28,374
	1917	39	202	12,074	971	13,045	317,699	178,125
	1918	84	696	8,803	1,875	10,678	183,883	131,142
	1919	69	295	9,078	6,336	15,414	586,661	327,537
	1920	55	71	3,775	2,033	5,808	68,298	44,943
South Australia	1913	9	13	272	16	288	2,412	1,029
	1917	24	44	3,958	146	4,104	57,446	30,306
	1918	17	25	1,576	429	2,005	18,276	10,515
	1919	32	75	4,437	3,409	7,846	238,378	127,303
	1920	40	126	4,732	1,067	5,799	282,402	140,326
Western Australia	1913	9	324	967	..	967	6,772	3,515
	1917	23	128	2,401	547	2,948	102,078	53,004
	1918	22	56	3,368	1,435	4,803	31,145	17,792
	1919	20	157	5,516	4,460	9,976	359,987	213,867
	1920	45	434	9,095	2,918	12,013	146,640	108,055
Tasmania	1913	8	30	444	20	464	967	434
	1917	8	11	1,062	623	1,685	52,541	24,502
	1918	1	1	42	..	42	462	250
	1919	5	127	1,098	588	1,686	63,271	32,738
	1920	12	14	1,610	146	1,756	54,283	32,160
Fed. Cap. Territory	1913	1	1	100	100	200	1,400	600
	1917 to 1920	..	..	..	..	..	..	..
Northern Territory	1913	1	4	131	39	170	2,500	1,675
	1917	2	2	75	..	75	615	529
	1918	3	4	112	10	122	428	395
	1919	5	9	46	21	67	1,910	1,436
	1920	..	..	..	..	..	..	..
Commonwealth	1913	208	921	33,493	16,790	50,283	623,528	287,739
	1917	444	1,941	154,061	19,909	173,970	4,599,658	2,594,808
	1918	298	1,154	42,553	13,886	56,439	580,853	372,234
	1919	460	1,713	100,300	57,291	157,591	6,308,226	3,951,936
	1920	554	2,104	102,519	53,047	155,566	1,872,065	1,223,716

* Any tabulations as to causes, duration, etc., based on disputes which were in existence in any given year, and not on those which commenced in that year, would inevitably result in confusion, seeing that particulars relating to the same dispute would probably occur in two successive years.

It may be seen from the foregoing table that industrial disputes throughout the Commonwealth were most frequent during the year 1920. The number of workpeople *involved in disputes during 1916 and 1917 increased to an enormous extent, while* the losses in working days and wages were considerably in excess of such losses during any previous yearly period. The figures for 1917 are swollen by the effects of the dispute at the Government Railway Workshops in New South Wales in connexion with the introduction of the "card system." The dislocation of industry due to this dispute is *the most extensive which has been recorded by the Bureau since the systematic* collection of particulars was undertaken at the beginning of the year 1913. After careful consideration of the data it was ascertained that 79 disputes throughout the various States were directly associated with the action of the employees at the Government Railway Workshops. The originating dispute, which commenced on the 2nd August, 1917, when the employees at the workshops ceased work as a protest against the introduction of a time-card system, rapidly extended to other industries throughout the Commonwealth. Railway employees in other branches of the service, coal and metalliferous miners, seamen, waterside workers, and others left work, mostly in sympathy with the railway men, while other workers, including carters, storemen, and artificial manure makers, refused to handle "black" goods and coal. Of the 79 disputes, which were the outcome of the original stoppage, 52 occurred in New South Wales; 18 in Victoria; 3 in South Australia; and 2 in each of the remaining States. The total number of workpeople involved in these dislocations was 97,507, the loss in working days was 3,982,250, with a consequent estimated loss in wages of £2,233,000. In addition a large number of employees in various industries, though not directly connected with the dispute, were thrown out of work by the restrictions placed upon the use of coal, gas and electricity.

The figures for 1914 and 1916 were inflated by disputes in the coal mining industry. In the earlier year, there was a protracted dispute in New South Wales through the refusal of the miners to work the afternoon shift. The estimated loss incurred was 523,000 working days, representing £259,000 in wages. In 1916 the coal mining employees in New South Wales, Victoria, Queensland, and Tasmania ceased work over the question of the "eight hours bank to bank." The loss on this occasion was 409,000 working days, equivalent to £240,850 in wages.

Three serious dislocations occurred during the year 1919. The stoppage of work at Broken Hill, in which metalliferous miners and others were involved, was the most prolonged dispute which has been recorded by this Bureau. The mines closed down during May, 1919, and work was not resumed until November, 1920. Over 7,000 workpeople at Broken Hill were thrown out of work, and it is estimated that the loss in wages to workpeople at the mines at Broken Hill and at the smelters, Port Pirie, exceeded £2,500,000. Seamen and marine engineers were also involved in protracted disputes, which caused heavy losses of working days and wages during the year. Detailed particulars of these important disputes have been published in Labour Reports, Nos. 10 and 11.

In regard to extensive dislocations of industry which occurred prior to the institution of systematic inquiries by the Bureau, efforts were made to obtain statistical data relating to the shearers' disputes in 1890, 1891 and 1894, and also concerning the number of workpeople involved and the losses caused by the maritime dispute in the early part of 1891, but precise information was not obtainable.

The proportion of disputes in each State expressed as a percentage on the total for the Commonwealth is as follows :—

PROPORTION PER CENT. OF DISPUTES IN THE LARGER STATES, 1914 TO 1920.

State.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
New South Wales ..	70	76	66	69	46	58	63
Victoria	13	11	11	12	11	13	10
Queensland	5	5	13	9	28	15	10
Other States and Territories	12	8	10	10	15	14	17
Commonwealth ..	100	100	100	100	100	100	100

Although the number of disputes in 1919 was less than that in 1916, and the number of workpeople involved was less than in either of the years 1916 and 1917, yet, measured by the loss of time and wages, the disruption to industry which occurred during 1919

was the most serious which the Commonwealth has experienced since records of such matters were instituted in 1913. Prior to 1919 the most serious loss in wages was incurred in 1917, when it amounted to £2,594,808, a sum outstanding in its magnitude as compared with other years. In 1919, however, this amount was exceeded by £1,357,128, the estimated loss in wages being £3,951,936, representing 6,308,226 working days. During the year 1920 particulars concerning 554 dislocations of work were recorded. This number is considerably higher than that for any previous year. The losses in working days (1,872,065) and in wages (£1,223,716) were, however, lower than those caused by disputes during 1917 and 1919. The more important of the disputes which contributed to the losses during 1920 were the dislocations of work in which were involved *marine stewards on inter-State vessels; factory engine-drivers and firemen,* Melbourne; gas workers, Melbourne; brown-coal miners, Morwell; ironstone quarrymen and others, Iron Knob and Whyalla, and State civil servants, Western Australia.

It is, of course, obvious that the mere number of disputes cannot by itself be accepted as a proper basis of comparison, nor does the number of workpeople afford a satisfactory basis. A better idea as to the significance and effect of industrial disputes may be obtained from the number of working days lost and the estimated loss in wages.

The position which New South Wales occupies in comparison with the other States is almost entirely due to the prevalence of disputes in connexion with coal mining. Apart from these stoppages the number of disputes in all other industries, whilst still in excess of that for each of the other States, does not compare unfavourably when the number of workpeople in each State is taken into consideration.

3. Number and Magnitude of Industrial Disputes in the Commonwealth, Classified according to Industrial Groups.—Comparative Particulars for 1919 and 1920.—The following table gives particulars of disputes in the Commonwealth during the years 1919 and 1920, classified according to industrial groups. The system of classification selected is similar to that adopted in connexion with labour organisations, unemployment, rates of wage, etc. (*see Report No. 11, Labour and Industrial Branch, page 9*).

INDUSTRIAL DISPUTES IN THE COMMONWEALTH, CLASSIFIED ACCORDING TO INDUSTRIAL GROUPS, 1919 AND 1920.

Industrial Group.	No. of Disputes.		No. of Work-people involved in Disputes.		No. of Working Days Lost.		Total Estimated Loss in Wages.	
	1919.	1920.	1919.	1920.	1919.	1920.	1919.	1920.
							£	£
I. Wood, Furniture, Timber, etc.	7	13	134	914	1,036	9,654	681	6,167
II. Engineering, Metal Works, etc.	15	14	1,846	7,312	18,147	73,108	10,726	44,702
III. Food, Drink, etc. ..	39	24	12,080	3,170	198,920	24,734	124,422	15,207
IV. Clothing, Hats, Boots, etc.	2	2	399	271	6,365	6,088	2,705	3,405
V. Books, Printing, etc. ..	..	5	..	2,083	..	114,785	..	64,810
VI. Other Manufacturing ..	31	31	5,091	7,342	57,095	109,709	29,477	65,965
VII. Building	12	17	2,810	6,527	127,729	99,599	76,118	67,501
VIII. Mines, Quarries, etc. ..	231	316	86,607	81,043	3,373,574	495,981	2,364,075	407,515
IX. Rail and Tramway Services	21	18	2,989	1,345	57,419	9,884	33,573	7,231
X. Other Land Transport ..	5	1	683	2	17,009	10	8,763	6
XI. Shipping, Wharf Labour ..	41	56	32,714	13,896	2,271,030	373,329	1,182,923	225,572
XII. Pastoral, Agricultural, etc.	24	11	6,257	360	49,770	3,157	34,497	2,824
XIII. Domestic, Hotel, etc. ..	5	6	287	556	1,018	4,419	396	1,449
XIV. Miscellaneous	27	40	5,694	30,936	129,114	547,808	83,680	311,362
Commonwealth, All Groups ..	460	554	157,591	155,566	6,308,226	1,872,065	3,951,936	1,223,716

Attention has frequently been drawn to the preponderating influence exercised by disputes in the coal-mining industry in New South Wales on the total number of industrial disputes. In making any comparison as to the number of disputes in this industrial class in each State, it should be observed that while the number of workers engaged in the mining industry is very much larger in New South Wales than in any of the other States, nevertheless the total number of disputes recorded in that State is considerably greater than in any other State. *Of the 3,167 disputes recorded in the Commonwealth* for the eight years 1913-20, 1,615 or 51.0 per cent. were connected with the industries included in Group VIII., Mines, Quarries, &c.

4. Duration of Industrial Disputes in the Commonwealth, 1920.—In the following table particulars are given with respect to the number of disputes, workpeople directly and indirectly involved, working days lost, and estimated amount of loss in

wages respectively, consequent on the cessations of work which were recorded for the Commonwealth during the year 1920, classified under the adopted limits of duration :—

DURATION OF INDUSTRIAL DISPUTES IN THE COMMONWEALTH, 1920.

Limits of Duration.	No. of Disputes.	No. of Workpeople Involved.			Number of Working Days Lost.	Total Estimated Loss in Wages.
		Directly.	Indirectly.	Total.		
						£
1 day and less	226	40,603	10,225	50,828	49,862	49,610
2 days and more than 1 day	62	11,443	2,965	14,408	27,114	23,705
3 days and more than 2 days	43	7,286	1,687	8,973	26,739	23,056
Over 3 days and less than 1 week (6 days)	58	10,228	1,819	12,047	52,601	41,572
1 week and less than 2 weeks	66	10,359	3,100	13,459	107,364	77,022
2 weeks and less than 4 weeks	43	9,549	22,030	31,579	412,219	243,031
4 weeks and less than 8 weeks	24	6,027	10,839	16,866	539,639	332,125
8 weeks and over ..	32	7,024	382	7,406	656,527	433,595
Total	554	102,519	53,047	155,566	1,872,065	1,223,716

NOTE.—Similar figures for the years 1913 to 1919 will be found in previous issues of the Year Book and in the Labour Reports.

5. **Industrial Disputes, Classified as to Causes, Commonwealth, 1914–1920.**—The following table shews the number of disputes, number of workpeople involved, and the total number of working days lost in disputes which commenced during the years 1914 to 1920, classified according to principal cause :—

CAUSES OF INDUSTRIAL DISPUTES IN THE COMMONWEALTH, 1914 TO 1920.

Causes of Disputes.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
NUMBER OF DISPUTES.							
1. Wages—							
(a) For increase ..	50	73	125	53	54	99	94
(b) Against decrease ..	8	10	7	1	4	2	..
(c) Other wage questions	67	46	96	69	69	100	106
2. Hours of Labour—							
(a) For reduction ..	1	3	16	2	1	4	16
(b) Other disputes re hours	13	6	5	8	11	5	9
3. Trades Unionism—							
(a) Against employment of non-unionists ..	13	19	14	26	7	19	20
(b) Other union questions	11	16	8	32	19	29	27
4. Employment of particular Classes or Persons ..	83	76	89	90	92	118	135
5. Working Conditions ..	72	76	90	81	34	54	106
6. Sympathetic	3	6	20	57	1	8	2
7. Other Causes	21	27	44	25	6	24	39
Total ..	337	358	508	444	298	460	554
NUMBER OF WORKPEOPLE INVOLVED.							
1. Wages—							
(a) For increase ..	7,362	18,782	30,193	7,186	7,095	58,532	41,748
(b) Against decrease ..	534	1,113	1,051	21	57	667	..
(c) Other wage questions	15,248	11,990	23,607	18,894	12,737	26,222	21,139
2. Hours of Labour—							
(a) For reduction ..	220	896	24,481	1,004	26	578	20,758
(b) Other disputes re hours	3,237	2,643	579	2,576	4,214	961	2,137
3. Trades Unionism—							
(a) Against employment of non-unionists ..	5,807	3,873	1,178	6,182	710	9,001	2,752
(b) Other union questions	1,593	3,739	1,167	17,828	6,873	17,509	7,534
4. Employment of particular Classes or Persons ..	14,863	13,844	15,910	15,445	14,576	21,488	26,163
5. Working Conditions ..	17,053	16,114	20,516	19,021	7,757	11,582	21,204
6. Sympathetic	678	950	4,191	76,076	200	8,089	1,397
7. Other Causes	4,462	7,347	47,910	10,296	2,394	7,971	10,734
Total ..	71,049	81,292	170,683	173,970	56,489	157,591	155,566

CAUSES OF INDUSTRIAL DISPUTES IN THE COMMONWEALTH, 1914 TO 1920—*continued*.

NUMBER OF WORKING DAYS LOST.

Causes of Disputes.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
1. **Wages**—							
(*a*) For increase ..	99,451	190,645	592,625	56,083	198,323	5,403,581	793,036
(*b*) Against decrease ..	32,965	12,555	6,192	42	310	10,018	..
(*c*) Other wage questions	169,847	133,606	143,248	225,080	97,561	96,118	101,210
2. **Hours of Labour**—							
(*a*) For reduction ..	9,240	886	583,052	76,016	312	10,372	534,458
(*b*) Other disputes *re* hours	16,835	23,374	1,598	62,560	20,551	15,760	37,486
3. **Trades Unionism**—							
(*a*) Against employment of non-unionists ..	92,720	31,145	48,881	87,600	21,894	279,604	24,900
(*b*) Other union questions	6,968	7,434	10,276	572,949	24,341	329,205	21,999
4. **Employment of particular Classes or Persons** ..	64,367	77,862	70,452	47,297	115,466	87,225	120,215
5. **Working Conditions** ..	584,289	82,322	81,511	211,971	93,468	32,029	128,967
6. **Sympathetic**	2,125	6,004	75,447	3,239,798	7,200	21,050	72,940
7. **Other Causes**	11,568	17,442	65,648	18,262	3,421	23,069	20,946
Total ..	1,090,395	583,225	1,678,930	4,599,658	580,853	6,308,226	1,872,065

It will be observed from the above table that the main causes of industrial disputes are "Wage" questions, "Working Conditions," and "Employment of Particular Classes or Persons." In each of the seven years, 1914–1920, the number of dislocations concerning wages exceeded those caused by any other question, having varied between a minimum proportion of 28 per cent. in 1917 and a maximum of 45 per cent. in 1916. The proportion attributed to this cause in 1920 was 36 per cent. The majority of the disputes classified under the heading, "Employment of Particular Classes or Persons," are stoppages of work for the purpose of protesting against the dismissal of certain employees, who, in the opinion of their fellow-workers, have been unfairly treated or victimised. This class of dispute occurs very frequently in the coal mining industry. The number of disputes over "Trade Union" questions and "Hours of Labour" has represented a fairly uniform proportion of the total number of disputes during the years under review. "Sympathetic" disputes were numerous during the years 1916 and 1917. The figures for the latter year were abnormal in comparison with the other periods. It may be mentioned, however, that the disputes which arose during that year in connection with the "time-card system" dispute were responsible for the increase in the number.

6. Results of Industrial Disputes, Commonwealth, 1913–20.—The following table shews the number of disputes, number of workpeople involved, and the number of working days lost in disputes throughout the Commonwealth during the eight years 1913–20, classified according to results :—

INDUSTRIAL DISPUTES CLASSIFIED ACCORDING TO RESULTS, COMMONWEALTH, 1913 TO 1920.

Year.	No. of Disputes.				Number of Workpeople Involved in Disputes.				Total Number of Working Days Lost by Disputes.			
	In Favour of Workpeople.	In Favour of Employer.	Compromise.	Indefinite.	In Favour of Workpeople.	In favour of Employer.	Compromise.	Indefinite.	In Favour of Workpeople.	In Favour of Employer.	Compromise.	Indefinite.
1913	67	64	66	11	10,914	12,211	24,626	2,332	59,823	104,654	438,014	26,037
1914	118	96	110	14	21,224	18,242	30,296	1,187	129,996	119,819	829,265	11,316
1915	190	78	68	22	44,140	15,327	14,860	6,965	245,625	155,659	151,544	30,397
1916	223	176	84	23	70,588	36,870	23,296	40,129	886,010	253,084	476,302	63,534
1917	147	188	100	9	24,831	119,569	22,310	7,740	103,267	4,201,981	285,108	9,307
1918	92	100	93	13	13,780	15,998	28,759	2,922	101,207	177,223	280,045	22,378
1919	154	157	140	9	54,810	42,149	55,445	4,196	2,398,252	406,361	3,483,571	20,042
1920	163	199	168	4	30,399	61,947	62,611	409	180,345	911,156	777,175	3,389

It will be seen from the above table that, during the years 1913, 1914, 1915, and 1916 the disputes resulting in favour of workpeople exceeded those resulting in favour of employers. During 1917, 1918, 1919, and 1920, however, the position was reversed. A considerable number of disputes in each year resulted in a compromise, while certain disputes resulted in such a manner that they could not be definitely classed as in favour of either party.

7. **Methods of Settlement of Industrial Disputes, Commonwealth, 1914–20.**—The following tables shew the number of disputes, number of workpeople involved, and number of working days lost in industrial disputes during the seven years 1914–20, classified for the Commonwealth according to the adopted schedule of methods of settlement :—

METHODS OF SETTLEMENT OF INDUSTRIAL DISPUTES, COMMONWEALTH, 1914 TO 1920.

Number of Disputes.

Methods of Settlement.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Negotiations—							
Direct between employers and employees or their representatives ..	247	254	319	234	171	291	380
By intervention or assistance of distinctive third party—not under Commonwealth or State Industrial Act	11	29	34	38	21	35	25
Under State Industrial Acts—							
By intervention, assistance, or compulsory conference	7	3	9	12	20	33	33
By reference to Board or Court ..	17	5	10	13	14	5	8
Under Commonwealth Conciliation and Arbitration Act—							
By intervention, assistance, or compulsory conference	5	2	6	3	8	9	8
By Filling Places of Workpeople on Strike or Locked Out ..	16	9	18	36	26	22	22
By Closing-down Establishment Permanently	4	1	6	4	8	7	4
By other Methods	30	55	106	104	30	58	74
Total	337	358	508	444	298	460	554

Number of Workpeople Involved.

Methods of Settlement.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Negotiations—							
Direct between employers and employees or their representatives	48,204	54,242	68,841	49,512	34,680	76,070	101,404
By intervention or assistance of distinctive third party—not under Commonwealth or State Industrial Act	8,054	6,170	32,043	23,338	4,155	47,849	6,278
Under State Industrial Act—							
By intervention, assistance, or compulsory conference	770	1,515	2,117	6,295	2,958	6,926	9,312
By reference to Board or Court ..	7,308	815	2,291	2,779	3,392	1,380	1,711
Under Commonwealth Conciliation and Arbitration Act—							
By intervention, assistance, or compulsory conference	205	2,919	1,110	1,490	3,042	1,997	766
By Filling Places of Workpeople on Strike or Locked Out ..	629	205	413	17,780	1,927	2,202	2,141
By Closing-down Establishment Permanently	86	200	150	434	538	461	162
By other Methods	5,793	15,226	63,718	72,342	5,741	20,766	33,772
Total	71,049	81,292	170,683	173,970	56,439	157,591	155,546

METHODS OF SETTLEMENT OF INDUSTRIAL DISPUTES, COMMONWEALTH, 1914 TO 1920—*continued.*

Methods of Settlement.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
			NUMBER OF WORKING DAYS LOST.				
Negotiations—							
Direct between employers and employees or their representatives	803,799	384,425	563,828	551,484	222,846	632,269	827,985
By intervention or assistance of distinctive third party—not under Commonwealth or State Industrial Act	128,231	56,126	812,763	858,896	37,444	5,379,655	217,916
Under State Industrial Act—							
By intervention, assistance, or compulsory conference	4,256	20,537	31,696	159,799	57,559	94,557	69,436
By reference to Board or Court ..	120,685	15,418	48,022	48,352	151,472	8,460	19,236
Under Commonwealth Conciliation and Arbitration Act—							
By intervention, assistance, or compulsory conference	1,421	20,883	20,697	39,396	23,280	74,018	34,205
By Filling Places of Workpeople on Strike or Locked Out ..	4,402	1,533	9,060	908,596	35,298	46,029	160,562
By Closing-down Establishment Permanently	3,646	19,600	2,776	11,392	4,270	5,737	12,919
By other Methods	23,955	58,703	190,088	2,022,743	48,675	67,501	529,806
Total	1,090,395	583,225	1,678,930	4,599,658	580,853	6,308,226	1,872,065

In the above tables the methods of settlement of all disputes recorded during the past seven years are set out in comparative form. In all years it will be observed that direct negotiations between the employers and employees settled the majority of the disputes. The proportion of disputes so settled ranges between a minimum of 53 per cent. in 1917 and a maximum of 73 per cent. in 1914; in 1920 the proportion was 69 per cent. The numbers of dislocations which have been settled by compulsory conferences or the intervention and assistance of officials under State or Commonwealth Arbitration Acts have not varied greatly during the period under review. In connexion with the comparatively large numbers of disputes which are classified as having been settled "By other methods," it must be mentioned that a large number of stoppages of work occur each year, principally at the collieries, without any cause for such stoppages being brought officially under the notice of the employers or their representatives. Such stoppages usually last for one day, and work is resumed without any negotiations for a settlement of the trouble which caused the stoppage.

8. **Industrial Disputes, Commonwealth.—Number and Magnitude during Calendar Years 1913 to 1920.**—In the following table particulars are given of the number of industrial disputes, the number of workpeople involved, and the losses in working days and wages caused by disputes during each *calendar* year 1913 to 1920, classified according to industrial groups :—

INDUSTRIAL DISPUTES, COMMONWEALTH.—NUMBER AND MAGNITUDE ACCORDING TO INDUSTRIAL GROUPS DURING EACH CALENDAR YEAR 1913-1920.

Calendar Year.	Manufacturing. (Groups I. to VI.).	Building. (Group VII.).	Mining. (Group VIII.).	Transport, Land and Sea. (Groups IX. to XI.).	Miscellaneous. (Groups XII. to XIV.)	ALL GROUPS.
			NUMBER OF DISPUTES.			
1913	37	10	103	36	22	208
1914	61	16	186	40	34	337
1915	67	8	204	54	25	358
1916	99	15	240	85	69	508
1917	104	6	200	77	57	444
1918	77	11	135	31	44	298
1919	94	12	231	67	56	460
1920	89	17	316	75	57	554
1913 to 1920 ..	628	95	1,615	465	364	3,167

INDUSTRIAL DISPUTES, COMMONWEALTH.—NUMBER AND MAGNITUDE ACCORDING TO INDUSTRIAL GROUPS DURING EACH CALENDAR YEAR 1913–1920—*continued.*

Calendar Year.	Manufacturing. (Groups I. to VI.).	Building. (Group VII.).	Mining. (Group VIII.).	Transport, Land and Sea. (Groups IX. to XI.).	Miscellaneous. (Groups XII. to XIV.)	ALL GROUPS.
			NUMBER OF WORKPEOPLE INVOLVED.			
1913	5,175	232	33,537	9,049	2,290	50,283
1914	13,017	4,321	48,785	3,256	1,670	71,049
1915	15,180	301	54,315	8,550	2,946	81,292
1916	15,482	751	95,512	9,366	49,572	170,683
1917	32,058	403	69,519	60,975	11,015	173,970
1918	10,472	685	35,149	6,507	3,626	56,439
1919	19,550	2,810	86,607	36,386	12,238	157,591
1920	21,092	6,527	81,043	15,043	31,861	155,566
1913 to 1920 ..	132,026	16,030	504,467	149,132	115,218	916,873
			NUMBER OF WORKING DAYS LOST.			
1913	61,384	2,303	389,854	121,034	47,960	622,535
1914	195,828	140,881	582,967	56,186	17,281	993,153
1915	128,719	801	460,801	59,286	33,353	682,960
1916	339,530	23,913	961,775	104,217	215,318	1,644,753
1917	845,557	8,084	1,317,600	2,374,474	143,601	4,689,316
1918	217,425	3,602	215,573	38,922	64,071	539,593
1919	272,405	124,003	1,826,694	1,898,900	181,736	4,303,738
1920	367,296	103,373	1,944,038	626,826	545,734	3,587,267
1913 to 1920 ..	2,428,154	406,960	7,699,302	5,279,845	1,249,054	17,063,315
			ESTIMATED LOSS IN WAGES.			
	£	£	£	£	£	£
1913	26,703	1,171	182,724	61,005	16,498	288,101
1914	96,461	72,735	293,722	30,178	7,379	500,475
1915	58,519	462	244,943	32,408	13,810	350,142
1916	177,361	13,107	587,163	51,532	115,635	944,798
1917	467,292	4,592	937,308	1,158,079	74,464	2,641,735
1918	131,811	2,235	146,676	21,298	43,114	345,134
1919	167,502	73,643	1,280,265	977,494	119,924	2,618,828
1920	215,057	70,006	1,418,193	357,786	309,345	2,370,387
1913 to 1920 ..	1,340,706	237,951	5,090,994	2,689,780	700,169	10,059,600

§ 7. Retail Prices, House Rents, and Cost of Living.

1. Introduction.—In Labour Report No. 1, issued in December, 1912, the results of certain investigations into the subjects of Prices, Price-Indexes and Cost of Living in past years were published, and some account was given of the methods employed for the collection of the data and of the technique adopted in the computation of the results. A detailed examination of the theory upon which the calculation of the index-numbers is based was given, but being necessarily too technical for the ordinary reader, was relegated to Appendixes. In Reports Nos. 2, 5, 6, 7, 8, 9, 10, and 11, results of further investigations were included, and in Labour Bulletins Nos. 1 to 18, and in Quarterly Summaries of Statistics, Nos. 70 to 84, information was incorporated regarding variations in retail and wholesale prices, house-rent, and purchasing-power of money up to the end of 1920.

It must here suffice to state that the method adopted for the computation of the index-numbers is what may very properly be called the "aggregate expenditure" *method*. The first process is, of course, to work out the average price of each commodity included, and numbers (called "mass-units") representing the *relative* extent to which each commodity was on the average used or consumed are then computed. The price in any year of each commodity multiplied by its corresponding "mass-unit" represents, therefore, the relative total expenditure on that commodity in that year *on the basis of the adopted regimen*. It follows, therefore, that by taking for any year the sum of the price of each commodity multiplied by its corresponding "mass-unit," a figure is obtained which represents the relative aggregate or total expenditure of the community in that year on all the commodities, etc., included. By computing these aggregate expenditures for a series of years and taking the expenditure in any selected year as "base," that is, making the expenditure in that year equal to 1,000 units, the relative expenditure in any other year, that is to say, the "index-numbers," are readily ascertained. Numerical examples of the technique and methods adopted for the computation of index-numbers were given in Report No. 2 (pp. 44 and 45), and in Report No. 9 Appendixes I. to IV., pp. 174 to 229.

2. **Scope of Investigation.**—It was pointed out in Report No. 1 that, in any investigation into the question of change in cost of living of a community, a careful distinction must be drawn between two things, viz. :—

(*a*) Variations in the *purchasing-power* of money, and
(*b*) Variations in the *standard of living*.

In Report No. 2, attention was drawn to the fact that the second element (*b*) can be limited, at any rate to some extent, by the exercise of self denial and thrift, and that such limitation is at the disposal of each individual; the former (*a*) is not subject to this possibility. Thus, from this aspect, social economics are concerned *primarily* with an accurate estimation of variations in the purchasing-power of money and only secondarily with the question of the general standard of living which has been reached. The first desideratum demands the selection of a suitable list of commodities, the quantities of each being taken in due proportion to their relative average consumption. The quantities in this list being kept constant, the cost of the whole group must then be ascertained. In this way a comparison may be made of the cost in different areas or districts at the same time, as well as the variation in any one place from time to time. This is the "aggregate expenditure" method explained above.

As explained in Report No. 1, special steps were taken to conduct the investigation back as far as 1901 for the capital towns only. The collection of current monthly returns as to prices and of quarterly returns of house rents commenced in 30 of the more important towns of the Commonwealth in January, 1912.

3. **Commodities and Requirements Included.**—The 47 items of expenditure included are divided into four groups, viz. :—(i) groceries and bread, (ii) dairy produce, (iii) meat, and (iv) house rent. These items cover about 60 per cent. of the total expenditure of a normal family. There are very cogent reasons for the restriction of the enquiries to the items mentioned. If the comparisons made are to be satisfactory, no confusion must arise between changes in the standard of living and changes arising from a variation of the purchasing-power of money. In order to avoid such confusion the items selected are such as are sensibly identical and identifiable in the various localities. The most important group of expenditure which is not included is clothing, the cost of which amounts to about 13 per cent. of the total expenditure. In Report No. 11 (page 26), a tabular statement was given furnishing particulars of the commodities and items included, the units of measurement for which prices are collected, and the mass-units shewing the relative extent to which each item is used or consumed. As the result, however, of a recommendation made by the Royal Commission on the Basic Wage, the Government has authorised the Bureau to extend its investigations to cover the whole of the ordinary expenditure of a household, and steps are being taken to give effect to the recommendation made. It is proposed, at an early date, to publish index numbers shewing

variations in the cost of clothing, fuel, and light, and other principal items of miscellaneous expenditure.

4. Variations in the Purchasing-Power of Money in each Metropolitan Town, 1901 to 1920.—In Labour Reports and Bulletins, and in recent issues of the Quarterly Summaries of Statistics, index-numbers were given for each of the four groups, and for all groups combined for each capital town since 1901, the expenditure in 1911 being taken in each case as base (=1,000). In this section summarised results only are given, firstly, for food and groceries; secondly, for house rent; and thirdly, for all groups combined—the weighted average expenditure for all capital towns in 1911 being taken in each case as base (=1,000). The index-numbers in each table are fully comparable with each other, that is to say, they shew not only the variations from year to year in each capital town, but also the relative cost as between the towns.

(i) *Food and Groceries.* The index-numbers thus computed for the three groups comprising groceries and food are shewn in the following table :—

RETAIL PRICES IN METROPOLITAN TOWNS, INDEX-NUMBERS FOR GROCERIES AND FOOD (GROUPS I., II., AND III.), 1901 TO 1920.

Town.	1901.	1906.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Sydney ..	917	964	989	1,124	1,131	1,156	1,396	1,520	1,540	1,549	1,783	2,148
Melbourne ..	965	945	935	1,082	1,024	1,091	1,411	1,462	1,412	1,466	1,620	2,056
Brisbane ..	965	959	1,018	1,102	1,042	1,078	1,373	1,426	1,406	1,495	1,762	2,052
Adelaide ..	1,028	982	1,020	1,154	1,119	1,215	1,487	1,582	1,445	1,554	1,719	2,132
Perth ..	1,184	1,237	1,346	1,345	1,267	1,302	1,483	1,542	1,505	1,486	1,772	2,050
Hobart ..	1,011	1,047	1,058	1,190	1,164	1,212	1,445	1,523	1,544	1,635	1,748	2,162
Weighted Average(a) ..	972	980	1,000	1,129	1,095	1,144	1,416	1,495	1,472	1,514	1,716	2,101

(a) For all capital towns.

The above figures are directly comparable in every respect; thus it will be seen that the same quantity of food and groceries, which cost £1,000 in the capital towns considered as a whole in 1911, would have cost £917 in Sydney in 1901, £1,346 in Perth in 1911, or £2,056 in Melbourne in 1920.

The weighted average retail price index-numbers for the six capital cities shew that the upward tendency of prices was temporarily arrested on two occasions since 1911—first in 1913, and, again, in 1917. The prices for Sydney shew a rise in every year since 1911 ; in 1917 Sydney and Hobart constituted exceptions to the decline experienced in all the other capitals; while in 1918 the figures for Perth only shewed a decline. In 1919 and 1920 increases were experienced in all the cities concerned. Comparing the results for 1920 with those for 1911 it will be seen that the extent by which prices increased, varied from 120 per cent. in Melbourne to 52 per cent. in Perth. It will be noticed, however, that prices were abnormally high in Perth in 1911.

(ii) *House Rent.* In the following table, index-numbers are given computed for the weighted average house rent in each of the capital towns from 1901 to 1920, taking the average rent for the six capital towns in 1911 as the base (=1,000). The average rent has been obtained for each town separately by multiplying the average predominant rent for each class of house (*i.e.*, houses having less than 4 rooms, 4 rooms, 5 rooms, 6 rooms, 7 rooms, and over 7 rooms) by a number ("weight") representing the relative number of houses of that class in the particular town. The sum of the products thus obtained, divided by the sum of the weights, gives the weighted average for all houses. The number of houses in each class for each town was obtained from the results of the 1911 census. It should be observed, therefore, that these index-numbers are based on the weighted average rents for all houses, and that they do not refer to any particular class of houses. The actual predominant rents for each class were given in appendixes to

Reports Nos. 1, 2, 5, 6, 7, 8, 9, 10, and 11, and an examination of these figures shews that for some classes of houses the increase has been greater, and in some less, than the general increase indicated in the following table.

HOUSE RENTS IN METROPOLITAN TOWNS.—INDEX-NUMBERS SHEWING WEIGHTED AVERAGE RENTS (GROUP IV.), 1901 TO 1920.

Town.	1901.	1906.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Sydney ..	858	891	1,090	1,183	1,246	1,279	1,220	1,212	1,215	1,252	1,290	1,415
Melbourne ..	733	782	970	1,016	1,089	1,126	1,085	1,089	1,124	1,180	1,283	1,405
Brisbane ..	488	524	767	804	863	882	859	847	859	905	983	1,061
Adelaide ..	629	761	1,112	1,160	1,125	1,040	932	930	959	1,022	1,108	1,216
Perth ..	801	716	810	880	928	914	848	869	874	885	916	996
Hobart ..	667	686	805	820	887	914	928	928	951	956	1,134	1,373
Weighted Average(a) ..	751	703	1,000	1,063	1,118	1,135	1,061	1,081	1,098	1,143	1,215	1,338

(a) For all capital towns.

NOTE.—The above figures are directly comparable in every respect.

The figures given in the above table shew that from 1901 to 1914 house rents increased in all the capital cities, though varying in degree, from 14 per cent. in Perth to 81 per cent. in Brisbane, where, however, rents were very low in 1901. The weighted average index-number, which is, of course, largely dominated by the experience of the more populous cities of Sydney (with an increase of 49 per cent.) and Melbourne (54 per cent.) increased from 751 in 1901 to 1,135 in 1914, or by 51 per cent. This increase in the weighted average represents the accumulated results of increments of varying amount, in each of the years 1901–1914, without exception. These annual increments to rents were experienced in all the capital cities except Adelaide and Perth. Since 1916 rents have advanced in all the capital cities. The rent index-numbers for Perth for the years 1904–10 consistently followed a direction opposite to that taken by the same indices relating to the other cities, inasmuch as, instead of moving upward, they declined during each year, the aggregate result being a fall from 802 in 1903 to 667 in 1909, and, although they rose in 1910 to 696, they were even then below the level of 1903. This period of falling rents in Perth—in such striking contrast to the experience of all the other capital cities—was contemporaneous with a diminution almost to vanishing point of net immigration, which for many years had been considerable. A further factor in the arrest of the growth of population consisted in the reduction of public expenditure following upon the completion of large public works, while, at the same time, there was a falling-off in speculative ventures in gold-mining. Moreover, during this period there was a marked movement by residents of Perth to land settlement in the southern districts of the State.

A further striking feature in the movements of rents, as shewn by the weighted average index-numbers given in the foregoing table, is the decline registered in the years 1915–1917. This fall was probably, in some measure, due to the circumstance that wives and other dependents of soldiers, for social reasons, gave up their separate establishments and shared houses or apartments, thus reducing the demand for house accommodation. The Government regulations forbidding the increase of rents of houses tenanted by soldiers' dependents would, also, have a restraining influence on any tendency for rents to rise. It will be seen that in 1918 rents were again at the 1914 level, and that in both of the years 1919 and 1920 fairly substantial increases occurred.

(iii) *Food, Groceries, and House Rent combined.* The weighted averages for all four groups are of importance, as indicating the general results of this investigation so far as the purchasing-power of money is concerned. The following table shews the

index-numbers for groceries, food, and house rent for each metropolitan town, the weighted average cost for the six capital towns in 1911 being taken as base (=1000):—

PURCHASING-POWER OF MONEY IN METROPOLITAN TOWNS.—PRICE INDEX-NUMBERS(a) SHEWING WEIGHTED AVERAGE RESULTS FOR ALL GROUPS (GROCERIES, DAIRY PRODUCE, MEAT, AND HOUSE RENT), 1901 TO 1920.

Town.	1901.	1906.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Sydney ..	893	934	1,031	1,148	1,178	1,206	1,323	1,394	1,406	1,427	1,580	1,847
Melbourne ..	870	878	950	1,055	1,051	1,105	1,277	1,309	1,294	1,349	1,481	1.788
Brisbane ..	769	780	915	979	969	997	1,162	1,188	1,181	1,252	1,442	1,645
Adelaide ..	864	891	1,058	1,157	1,121	1,143	1,259	1,285	1,245	1,335	1,468	1,756
Perth ..	1,027	1,024	1,126	1,154	1,128	1,143	1,222	1,266	1,246	1,239	1,420	1,617
Hobart ..	869	809	954	1,042	1,050	1,090	1,233	1,278	1,301	1,356	1,496	1,837
Weighted Average(b) ..	880	902	1,000	1,101	1,104	1,140	1,278	1,324	1,318	1,362	1,510	1,785

(a) As the price index-number increases, the purchasing-power of money diminishes.
(b) For all capital towns.

NOTE.—The above figures are directly comparable in every respect.

From this table, which presents the index-numbers for the combined results from food and groceries and rents, it will be seen that, on the basis of the weighted average for the six capital cities, the decline (alluded to in (i) of this sub-section) in the prices of food and groceries during 1913 was more than counterbalanced by the rise in house rents. This, however, was not the case with regard to Melbourne, Brisbane, or Perth, for each of which the combined index shews a decline. Adelaide, alone, shewed a decrease in house rents in 1913, consequently the decline in the combined index-number for that city was the most marked. In 1917 the fall in the prices of food and groceries was sufficient to outweigh the increase in house rents and so effect a slight decrease in the combined index-number. As in 1913, the net effect in Sydney and in Hobart did not conform to the experience indicated by the weighted average. In 1918 the upward movement was experienced in all the cities except Perth, while in 1919 and 1920 it was general throughout.

The abnormal movements of the prices of food and groceries, and of house rents, during the war years present features of particular interest. It will be seen that, on the basis of the weighted averages, prices of food and groceries rose in 1915 by about 24 per cent. over 1914, and continued on a somewhat higher level, whereas the weighted average for house rents fell in 1915 by 4.8 per cent., and remained below the 1913 level until 1918. The combination of house rents with prices of food and groceries has had the effect of very materially modifying the index of prices, or, in other words, the purchasing-power of money, as compared with the similar index based on food and groceries only. In 1918, 1919, and 1920 there were increases in both prices of food and groceries and house rents, the combined results for 1920 being an increase of 18.2 per cent. over 1919, 56.6 per cent. over 1914, and 78.5 per cent. over 1911. The increase in the purchasing-power of money index-number between 1920 and 1914 has varied between the capital cities from 41 per cent. in Perth to 69 per cent. in Hobart, while between 1920 and 1911 it has varied between 44 per cent. in Perth and 93 per cent. in Hobart.

5. Variation in Purchasing-Power of Money, 1901 to 1920.—The tables in paragraph 4 give the relative cost in the six capital towns of food, groceries, and house rent from 1901 to 1920 in the form of index-numbers. The figures have been converted into a monetary basis in the next table, and shew the sums which would have to be paid in each town and in each year in order to purchase such relative quantities (indicated by the mass-units) of the several commodities, and to pay such sums for house rent as would in the aggregate cost £1, according to the weighted average prices and rents in the six capital towns in 1911.

CHANGES IN PURCHASING-POWER OF MONEY (FOOD, GROCERIES, AND HOUSE RENT), 1901–20.

Year.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.	Hobart.	Weighted Average of 6 Capital Towns.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1901	17 10	17 5	15 5	17 3	20 6	17 5	17 7
1906	18 8	17 7	16 7	17 10	20 5	18 0	18 0
1911	20 7	19 0	18 4	21 2	22 6	19 1	20 0(a)
1913	23 7	21 0	19 5	22 5	22 6	21 1	22 1
1914	24 1	22 1	19 11	22 10	22 10	21 10	22 10
1915	26 6	25 6	23 3	25 2	24 5	24 8	25 7
1916	27 10	26 2	23 9	25 8	25 4	25 7	26 6
1917	28 1	25 11	23 7	24 11	24 11	26 0	26 4
1918	28 6	27 0	25 1	26 8	24 9	27 1	27 3
1919	31 7	29 7	28 10	29 4	28 5	29 11	30 2
1920	36 11	35 9	32 11	35 1	32 4	36 9	35 8

(a) Basis of Table.

(i) *Groceries and Food only.* The following table has been computed in the same manner as that indicated above, but relates to *groceries and food* (46 items) *only.* The average expenditure for the six capital towns in 1911 has again been taken as the basis of the table (=20 shillings) and the figures are, of course, comparable throughout.

CHANGES IN PURCHASING-POWER OF MONEY.—GROCERIES AND FOOD, 1901–20.

Year.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.	Hobart.	Weighted Average of 6 Capital Towns.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1901	18 4	19 4	19 4	20 7	23 8	20 3	19 4
1906	19 3	18 11	19 2	19 8	24 9	20 11	19 7
1911	19 9	18 8	20 4	20 5	26 11	21 2	20 0(a)
1913	22 8	20 6	20 10	22 5	25 4	23 3	21 11
1914	23 1	21 10	21 7	24 4	26 0	24 3	22 11
1915	27 11	28 3	27 6	29 9	29 8	28 11	28 4
1916	30 5	29 3	28 6	30 8	30 10	30 5	29 11
1917	30 10	28 3	28 2	28 11	30 1	30 11	29 5
1918	31 0	29 4	29 11	31 1	29 9	32 8	30 3
1919	35 8	32 5	35 3	34 5	35 5	35 0	34 4
1920	43 6	41 1	41 1	42 8	41 6	43 3	42 0

(a) Basis of Table.

(ii) *House Rent only.* The following table gives similar particulars for *house rent only,* the average for the six capital towns in 1911 being again taken as the basis of the table (=20 shillings) :—

CHANGES IN PURCHASING-POWER OF MONEY.—HOUSE RENT, 1901–20.

Year.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.	Hobart.	Weighted Average of 6 Capital Towns.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1901	17 3	14 8	9 9	12 7	16 0	13 4	15 1
1906	17 11	15 8	10 6	15 3	14 4	13 9	15 11
1911	21 10	19 5	15 4	22 3	16 3	16 1	20 0(a)
1913	24 11	21 10	17 3	22 6	18 7	17 10	22 4
1914	25 7	22 6	17 8	20 10	18 3	18 3	22 8
1915	24 5	21 8	17 2	18 8	17 0	18 7	21 7
1916	24 3	21 9	17 0	18 7	17 4	18 7	21 7
1917	24 3	22 6	17 5	19 2	17 5	19 0	22 0
1918	25 0	23 7	18 1	20 5	17 8	19 1	22 10
1919	25 9	25 8	19 8	22 2	18 4	22 8	24 4
1920	28 4	28 1	21 3	24 4	19 11	27 5	26 8

(a) Basis of Table.

6. Relative Cost of Food, Groceries, and House Rent in Different Towns, 1920.—The index-numbers given in the preceding paragraphs shew *changes in the cost of food, groceries, and house rent separately for each capital town during the years* 1901 *to* 1920. The figures given in the table below shew *the relative cost of food and groceries, and of house rent in* 1920 *in the thirty towns* for which particulars are now collected. The weighted aggregate expenditure for the six capital towns for the year 1911 has been taken as base and made equal to 1,000, hence the columns are comparable both horizontally and vertically.

INDEX-NUMBERS, SHEWING RELATIVE COST IN THIRTY TOWNS, OF FOOD AND GROCERIES AND HOUSE RENT COMPARED WITH WEIGHTED AVERAGE EXPENDITURE THEREON IN THE SIX CAPITAL TOWNS IN 1911 AS BASE (=1,000), YEAR 1920.

Town.	Groceries and Food.	House Rent.				Groceries, Food and Rent, including Houses having—			
		Four-roomed Houses only.	Five-roomed Houses only.	Six-roomed Houses only.	All Houses Weight'd Average.	Four Rooms.	Five Rooms.	Six Rooms.	All Houses Weight'd Average.
NEW SOUTH WALES—									
Sydney	1,266	465	543	639	581	1,731	1,809	1,905	1,847
Newcastle ..	1,264	363	515	652	502	1,627	1,779	1,916	1,766
Broken Hill(a) ..	1,412	281	352	438	300	1,693	1,764	1,850	1,712
Goulburn ..	1,287	330	429	634	549	1,617	1,716	1,921	1,836
Bathurst	1,245	243	330	426	370	1,488	1,575	1,671	1,615
Weighted Average ..	1,271	444	529	630	560	1,715	1,800	1,901	1,831
VICTORIA—									
Melbourne ..	1,211	409	530	660	577	1,620	1,741	1,871	1,788
Ballarat	1,225	188	275	370	333	1,413	1,500	1,595	1,558
Bendigo	1,183	230	318	430	352	1,413	1,501	1,613	1,535
Geelong	1,175	312	418	511	448	1,487	1,593	1,686	1,623
Warrnambool ..	1,199	323	427	520	441	1,522	1,626	1,719	1,640
Weighted Average ..	1,209	376	492	616	538	1,585	1,701	1,825	1,747
QUEENSLAND—									
Brisbane	1,209	285	374	480	436	1,494	1,583	1,689	1,645
Toowoomba ..	1,178	245	324	405	398	1,423	1,502	1,583	1,576
Rockhampton ..	1,217	217	272	365	340	1,434	1,489	1,582	1,557
Charters Towers ..	1,256	241	306	366	301	1,497	1,562	1,622	1,557
Warwick	1,205	208	299	393	363	1,413	1,504	1,598	1,568
Weighted Average ..	1,210	269	351	449	409	1,479	1,561	1,659	1,619
SOUTH AUSTRALIA—									
Adelaide	1,256	368	488	626	500	1,624	1,744	1,881	1,756
Moonta, etc. ..	1,231	252	330	438	340	1,483	1,561	1,669	1,571
Port Pirie(a) ..	1,235	350	420	457	395	1,585	1,655	1,692	1,630
Mt. Gambier ..	1,164	221	282	369	304	1,385	1,446	1,533	1,468
Peterborough ..	1,232	289	376	444	375	1,521	1,608	1,676	1,607
Weighted Average ..	1,250	356	469	597	478	1,606	1,719	1,847	1,728
WESTERN AUSTRALIA—									
Perth, etc. ..	1,208	346	438	528	409	1,554	1,646	1,736	1,617
Kalgoorlie, etc. ..	1,356	360	438	502	350	1,716	1,794	1,858	1,706
Mid. Junction, etc. ..	1,219	246	323	402	309	1,465	1,542	1,621	1,528
Bunbury	1,210	273	329	355	255	1,483	1,539	1,565	1,465
Geraldton ..	1,220	379	464	583	401	1,599	1,684	1,803	1,621
Weighted Average ..	1,239	343	431	514	388	1,582	1,670	1,753	1,627
TASMANIA—									
Hobart	1,373	448	538	618	564	1,721	1,811	1,891	1,837
Launceston ..	1,242	310	441	513	450	1,552	1,683	1,755	1,692
Zeehan	1,339	164	221	262	154	1,503	1,560	1,601	1,493
Beaconsfield ..	1,219	61	88	97	81	1,288	1,307	1,316	1,300
Queenstown ..	1,266	263	336	362	255	1,529	1,602	1,628	1,521
Weighted Average ..	1,264	363	461	531	470	1,627	1,725	1,795	1,734
Commonwealth Weighted Average, 30 Towns ..	1,239	385	484	593	514	1,624	1,723	1,832	1,753

(a) See remarks on page 49 of Labour Report No. 11, with reference to house rents.

A table shewing the retail price index-numbers (food and groceries) for each of the thirty towns for various months in the year since July, 1914, appeared in previous issues, but consideration of space precludes its repetition in the present issue. This table is, however, given in Labour Report No. 11, issued by this Bureau.

§ 8. Investigation into Purchasing-Power of Money in 150 Towns in Commonwealth.

1. **Introduction.**—In the earlier investigations with regard to the variations in the purchasing-power of money, inquiries were restricted to the 30 towns mentioned in the preceding table. To provide a wider field of observation, investigations were extended in November, 1913, to 100 towns, and in November, 1915, to 150 towns. The index-numbers for these 150 towns are computed from the retail prices ruling in November of each year.

2. **Map shewing the relative Purchasing-Power of Money in various Localities.**—The index-numbers for each of the 150 towns referred to in the preceding paragraph are tabulated on the inset on page 1033, and are accompanied by a map of Australia. The position of any town may be located on the map by the reference numbers printed on the left-hand margin of the table. The weighted average cost for the 100 towns in 1913 has been taken as the base, and the index-numbers are comparable throughout. Separate index-numbers are given for food, groceries, and rent of five-roomed houses (Column headed " A "), and for food and groceries only (Column headed " B ").

§ 9. Wholesale Prices.

1. **General.**—The results of an investigation into wholesale prices in Melbourne from 1871 to the end of September, 1912, were given in some detail in Report No. 1 of the Labour and Industrial Branch. Summarized results for later years are included in later Reports of the same Branch.

The index-numbers up to the year 1911 are based on the prices of eighty commodities, but since that year the number has been increased to ninety-two.* The methods followed for the computation of the wholesale price index-numbers are the same as those adopted in regard to retail prices. The commodities included, the units of measurement for which the prices are taken, and the mass-units, indicating the relative extent to which each commodity is used or consumed, are shewn in a tabular statement in Report No. 11 (page 68).

2. **Index-Numbers and Graphs.**—Index-numbers have been computed for each group of commodities, as well as for all groups together. The index-numbers for the several groups, and for all groups together, are shewn in the following table.

(i) *Table of Index-Numbers.* The index-numbers have in each case been computed with the prices in the year 1911 as base. They shew, for each of the years specified, the expenditure necessary, if distributed in purchasing the relative quantities (indicated by the mass-units) of the several commodities concerned, to purchase what would have cost £1,000 in 1911. Thus, in the last column it may be seen that the cost of the relative quantities of the various commodities was 1,229 in 1871, and 974 in 1901, as compared with 1,000 in 1911, 1,934 in 1918, 2,055 in 1919, and 2,480 in 1920. In other words, prices were lower in 1911 than in either 1871, 1914, 1918, or 1920, and the purchasing-power of money in 1911 was, accordingly, greater. Again, prices were lower in 1901 than in 1911, and the purchasing-power of money in the former year was therefore, greater.

* In the computation of the index-numbers for years prior to 1911, the aggregate expenditure on 80 commodities in 1911 is taken as base (= 1,000), while for later years the aggregate expenditure on 92 commodities is taken.

MELBOURNE WHOLESALE PRICES, INDEX-NUMBERS, 1861 TO 1920, COMPUTED TO YEAR 1911 AS BASE.

Year.	I. Metals and Coal.	II. Jute, Leather, etc.	III. Agricultural Produce, etc.	IV. Dairy Produce.	V. Groceries.	VI. Meat.	VII. Building Materials.	VIII. Chemicals.	All commodities together.
1861 .	1,438	1,881	1,583	1,008	1,963	. . .	1,070	2,030	1,538
1871 ..	1,096	1,257	1,236	864	1,586	..	1,044	1,409	1,229
1881 ..	1,178	1,115	1,012	935	1,421	..	1,091	1,587	1,121
1891 ..	895	847	1,024	995	1,032	888	780	1,194	945
1901 ..	1,061	774	928	1,029	1,048	1,345	841	917	974
1902 ..	1,007	756	1,193	1,215	945	1,447	837	881	1,051
1903 ..	923	834	1,209	1,059	936	1,443	875	921	1,049
1904 ..	821	885	754	876	916	1,427	845	875	890
1905 ..	772	850	894	980	942	1,209	801	859	910
1906 ..	882	978	916	972	923	1,110	896	864	948
1907 ..	1,037	1,017	973	1,020	948	1,294	968	961	1,021
1908 ..	1,033	901	1,312	1,198	968	1,335	935	891	1,115
1909 ..	1,014	907	1,000	1,119	978	1,088	911	815	993
1910 ..	1,004	1,052	969	1,100	999	1,008	996	898	1,003
1911 ..	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**
1912 ..	1,021	991	1,370	1,206	1,052	1,357	1,057	978	1,170
1913 ..	1,046	1,070	1,097	1,054	1,024	1,252	1,128	905	1,088
1914 ..	1,099	1,032	1,207	1,137	1,021	1,507	1,081	1,253	1,149
1915 ..	1,284	1,017	2,162	1,530	1,133	2,435	1,275	1,528	1,604
1916 ..	1,695	1,423	1,208	1,485	1,322	2,515	1,491	1,760	1,504
1917 ..	2,129	2,008	1,157	1,423	1,348	2,403	1,884	2,171	1,662
1918 ..	2,416	2,360	1,444	1,454	1,422	2,385	2,686	3,225	1,934
1919 ..	2,125	2,363	1,985	1,651	1,516	2,348	2,851	2,898	2,055
1920 ..	2,208	2,624	2,439	2,209	1,918	3,279	3,226	2,825	2,480

NOTE.—The figures given in this table are comparable in the vertical columns, but are not directly comparable horizontally. The index-numbers are reversible.

(ii) *Graphs.* The index-numbers are shewn for each group and for all groups combined in the graphs on page 1034. The heavy line, repeated on each graph, represents the index-numbers for the weighted average for all groups, and is shewn so that comparison may be made between the price levels for all commodities and those for the commodities comprised in each group separately. The index-numbers for the individual groups are represented by the light lines. The broken lines at the commencement of each graph shew the index-numbers for the separate years 1861 and 1866, the continuous records commencing with the year 1871. The actual index-numbers for the whole period were given in Report No. 1.

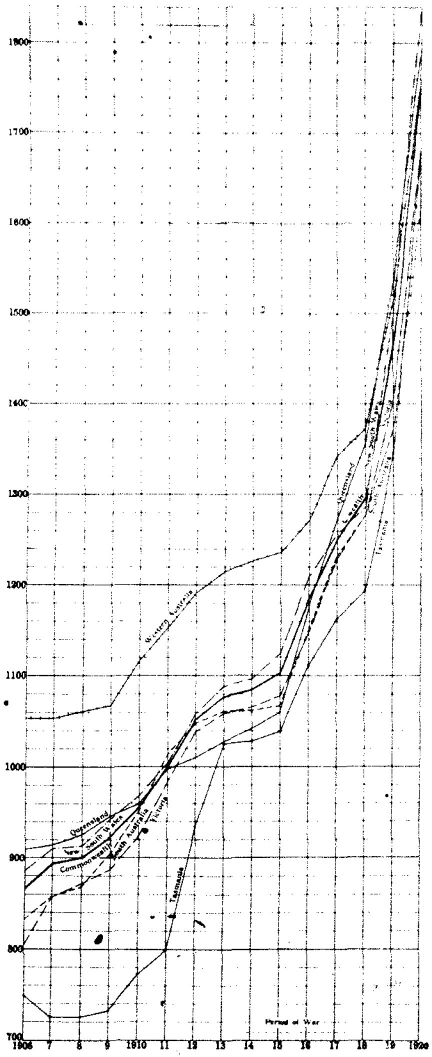
3. Seasonal Fluctuations and Tables of Prices.—Information as to seasonal fluctuations in wholesale prices was given in Report No. 2 (page 64), and tables of prices of each commodity were given in Appendixes to the Reports of the Labour and Industrial Branch of this Bureau.

4. Fluctuations in Wholesale Prices, July, 1914, to July, 1921.—Since the outbreak of war, prices of many commodities have increased considerably. This is shewn in the following table in which the index-numbers are given for each group for the month of July, 1920, taking July, 1914, the last month before the outbreak of war, as base (=1,000) for each group:—

MELBOURNE WHOLESALE PRICES.—VARIATIONS BETWEEN JULY, 1914, AND JULY, 1920, AND JULY, 1921.

Particulars.	I. Metals and Coal.	II. Jute, Leather, etc.	III. Agricultural Produce, etc.	IV. Dairy Produce.	V. Groceries.	VI. Meat.	VII. Building Materials.	VIII. Chemicals.	All Groups.
July, 1914	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
July, 1920	2,109	2,518	2,438	1,884	1,928	2,609	3,069	2,834	2,671
July, 1921	1,945	1,107	1,579	1,655	1,881	1,191	2,377	2,198	1,589

NOMINAL WAGE INDEX NUMBERS IN EACH STATE AND COMMONWEALTH, 1906 TO 1920

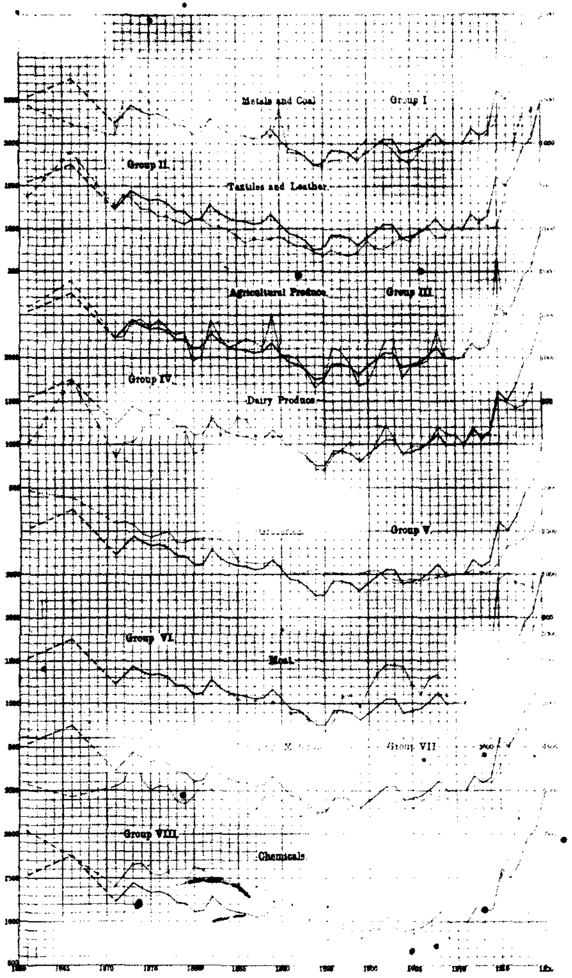


(See page 1006.)

EFFECTIVE WAGE INDEX-NUMBERS IN EACH STATE AND COMMONWEALTH, 1906 TO 1920.

(See page 1066.)

MELBOURNE WHOLESALE PRICE INDEX NUMBERS, [illegible] TO 1920.



EXPLANATORY NOTE.—The scale for each of the graphs for groups 1, 3, 5, and 7 is shewn by the figures on the right of the diagram, that for the graphs for groups 2, 4, 6 and 8, on the left of the diagram, the *line marked 1000 shewing the base line (for the year 1911) in each case.* The heavy line in each graph represents the index-numbers for all groups combined, the light line (dotted thus . in the case of the even groups) indicating in each instance the index-numbers for the separate group. (See page 1030.)

It will be seen that, on the basis of the weighted average for all the groups of commodities included in the computation, prices in 1920 were 167 per cent. higher than in 1914. During 1921, however, prices fell and in July, 1921, were 58.9 per cent. higher than in July, 1914.

§ 10. Control of Trade and Prices.

1. **General.**—Shortly after the outbreak of war, a conference of Federal and State Ministers met to discuss the financial position and other matters, and it was decided that for the purpose of controlling the prices of foodstuffs, each State [illegible] *uniform* legislation, since it was obvious that this was necessary in [illegible] circumstances. Particulars of the various Acts passed by the State Governments were given in Labour Bulletin No. 6, September, 1914, pages 132–147. The same publication shews that there was great diversity in regard to the operations of the various authorities created in the different States.

As a further outcome of this conference, in addition to the various State Boards and Commissions, a Federal Royal Commission, consisting of the Hon. Alfred Deakin (chairman), the Hon. Dugald Thomson, formerly Minister for Home Affairs, and Mr. G. H. Knibbs, C.M.G., Commonwealth Statistician, was appointed to collect information and report upon such matters as the supply of foodstuffs and other necessaries required by and available for Australia during the war and cognate matters. This Commission ceased to exercise its functions after the 30th October, 1914.

2. **Federal Control of Prices.**—In March, 1916, the Federal Government created a Prices Adjustment Board with authority to fix the prices of flour, bread, bran, and pollard. The Board fixed the prices of flour, bran, and pollard in every milling centre in Australia. Prices of bread were fixed in upwards of 1,000 separate towns, after investigations had been made as to the cost of manufacture, distribution, etc. An important judgment of the High Court, as to the powers of Government to fix prices, was obtained as the result of the conviction of a Melbourne suburban baker, by the local magistrate, for selling bread at a higher rate than that fixed by the Prices Adjustment Board. This conviction was appealed against, but the High Court, by a majority decision, affirmed that in matters affecting the safety of Australia the Government, under the War Precautions Act, had plenary powers, and that the decision as to what is necessary rests with the Executive and not with the judicial authority. After this judgment, the scope of the investigations and activities of the Prices Adjustment Board were considerably enlarged, and an exhaustive list of commodities was declared to be "necessary commodities." Later, a Commissioner was appointed in each State to make investigations, and to make recommendations to the Minister as to the necessity for fixing maximum selling prices of various commodities.

Shortly after the appointment of these Commissioners, the members of the Prices Adjustment Board resigned in a body, and the control of prices was placed in the hands of a Minister acting upon the recommendations of State Commissioners. The Commissioner for Victoria acted also as Chief Prices Commissioner. Prices were fixed, by regulations under the War Precautions Act, for a large number of commodities. In May, 1919, the Commonwealth Government released from the control of the Prices Commissioners many articles, trade in which had been regulated during the war.

In July, 1919, control ceased of all but a few commodities, the more important of which were butter, cheese and flour. In August, 1920, the Commonwealth organization for the fixing of prices was abolished. Prices, however, of necessary commodities were not permitted to remain uncontrolled except in Tasmania. In New South Wales, Queensland, and South Australia price fixing was resumed under the authority of Acts already in existence, while in Victoria and Western Australia necessary legislation was passed to enable the Governments of these States to deal with the subject.

The following statement shews the Acts which have been passed, and the Bills introduced by the Governments of the various States for the purpose of controlling prices :—

New South Wales.—In New South Wales, control of prices was resumed in July, 1919, under authority of the "Necessary Commodities Control Act, 1914." In January, 1920, this Act was superseded by the "Necessary Commodities Control Act, 1919," and in December, 1920, by the "Profiteering Prevention Act, 1920," which is still in force.

Victoria.—In Victoria, an Act entitled the "Necessary Commodities Control Act, 1919," was passed. Under authority of this Act a "Fair Profits Commission," consisting of three members, was appointed for the purpose of regulating prices of necessary commodities in Victoria. This Act was repealed in 1920 and the Commission disbanded, thus bringing to an end all State control of prices.

Queensland.—Queensland resumed control of prices in December, 1919, under authority of "The Control of Trade Act, 1914." In March, 1920, this Act was superseded by "The Profiteering Prevention Act, 1920," under which a "Commissioner of Prices" was appointed to control prices in Queensland.

South Australia.—State control was resumed in August, 1919, under authority of the "Prices Regulation Act, 1914." In November, 1919, this Act was superseded by the "Prices Regulation Act, 1919," under which a "Prices Regulation Commission," consisting of three members, was appointed to control prices in South Australia. This Act was repealed in September, 1921, and consequently all control of prices ceased.

Western Australia.—In Western Australia, State control of prices was not resumed until December, 1919, when an Act, entitled "The Prices Regulation Act, 1919," was passed. Under this Act three Commissioners were appointed for the control of prices in Western Australia. In 1920 the "Prices Regulation Act, and Continuance Act, 1920" was passed, and is still in force.

Tasmania.—In Tasmania, a "Necessary Commodities Control Bill, 1919," was introduced, but was not passed.

3. **Control of House Rents.**—No attempt was made by the Commonwealth Government to control rents generally, but War Precautions Regulations afforded special protection to persons connected with the Defence Forces against increases in rent. During the war the Inter-State Commission conducted an investigation into Housing Accommodation and Rents. Fair Rents Courts are in operation in New South Wales, under the "Fair Rents Act, 1915," and in Queensland under "The Fair Rents Act, 1920." Recently a "Fair Rents Bill" was introduced in Tasmania, but at the time of writing had not become law. In the other States no legislative regulation of house rents is in force.

SECTION XXXIV.

MISCELLANEOUS.

§ 1. Immigration, Passports, and Aliens Registration.

(A) The Encouragement of Immigration into Australia.

1. **Introduction.**—Various measures have from time to time been adopted by the Commonwealth and State Governments, as well as by private societies and individuals, with a view to promoting the immigration of suitable classes of settlers into Australia. The activities of the Commonwealth Government (which is vested with constitutional powers in regard to immigration under section 51, xxvii., of the Constitution Act 1900) with respect to the encouragement of immigration, were practically confined to advertising the resources and attractions of Australia by means of exhibitions and in handbooks, newspapers, and periodicals. With the outbreak of war the immigration operations were almost entirely suspended.

2. **Joint Commonwealth and States Immigration Scheme.**—In 1920 an arrangement was arrived at between the Commonwealth and State Governments under which the Commonwealth is to be responsible for the recruiting of immigrants abroad and for their transport to Australia; whilst the State Goverments, on their part, are to advise the Commonwealth as to the numbers and classes of immigrants which they are prepared to receive. Briefly stated, the Commonwealth will select the immigrant according to the requirements of the State concerned and bring him to Australia; and on his arrival the State Government will assume the responsibility for placing him in employment or upon the land. Incidentally, the Commonwealth will undertake all publicity and propaganda in connexion with the encouragement of immigration.

3. **Assisted and Nominated Passages.**—The Commonwealth Government will donate £12 towards the passages of approved settlers for Australia. Further assistance will be granted by way of loans in special cases. Under the joint scheme the immigrants entitled to part-paid fares are divided into two classes—"Assisted" immigrants and "Nominated" immigrants. "Assisted" immigrants are those who are originally recruited by the Commonwealth overseas. "Nominated" immigrants are those nominated by persons resident in the Commonwealth, and the nominators, who must submit their applications through the Officers in Charge of the State Immigration Offices in the various capital cities, are required to undertake to look after their nominees upon arrival, and to see that they do not become a burden upon the State.

4. **Overseas Settlement Committee's Free Passage Scheme.**—Free passages to Australia will be granted by the Overseas Settlement Committee, London, to British ex-service men and their dependents and to British ex-service women who are accepted as suitable settlers under the Joint Commonwealth and State Immigration Scheme. This concession will remain in force until the end of 1921, and every Australian of good repute is eligible to nominate British ex-service men and women and to have their nominees landed in Australia free of charge to both nominator and immigrant.

Intending settlers or immigrants may, on application, obtain full information from—

THE DIRECTOR OF MIGRATION AND SETTLEMENT,
AUSTRALIA HOUSE,
THE STRAND,
LONDON, W.C.2,

THE COMMONWEALTH SUPERINTENDENT OF IMMIGRATION,
MELBOURNE,
AUSTRALIA.

(B) The Regulation of Immigration into Australia.

1. **Pre-Federal Restrictions.**—(i) *Alien Races.* The several States of Australia had regarded it as desirable, long prior to Federation, to impose certain restrictions upon the admission of persons wishing to become inhabitants of those States. The influx of Chinese for example, was limited by stringent statutes, and later, general Acts were passed in some of the States which had the effect of restricting the immigration of other —principally Asiatic—races.

(ii) *Undesirable Immigrants.* Further restrictions were placed upon the admission of persons who were undesirable as inhabitants, either for medical or moral reasons, or who were likely to be an economic burden upon the community.

2. **Powers and Legislation of the Commonwealth.**—(i) *Constitutional Powers.* By Chap. I., Pt. V., Sec. 51, xxvii. and xxviii. of the Commonwealth Constitution Act the Parliament of the Commonwealth is empowered to make laws with respect to immigration and emigration and the influx of criminals. (See page 16 herein.)

(ii) *Legislation.* The powers above specified have now been exercised by the Commonwealth Government, and the laws passed in pursuance thereof supersede the previously existing State laws. The present Commonwealth Acts dealing with Immigration are the Immigration Act 1901–1920 and the Contract Immigrants Act 1905. A summary of the provisions of these Acts (excepting the provisions of the Amending Immigration Act 1920, which are given below), containing particulars regarding the admission of immigrants, prohibited immigrants, the liabilities of shipmasters and others, and kindred matters will be found in preceding Year Books (see Year Book, No. 12, pp. 1166–1168).

3. **Amending Immigration Act 1920.**—The principal provisions of this Act, which came into operation as from the 2nd December, 1920, are those prohibiting the entry of (*a*) any person who advocates the overthrow by force or violence of the established Government of the Commonwealth or of any State or of any other civilized country, or of all forms of law, etc.; (*b*) for a period of five years, any person of German, Austro-German, Bulgarian, or Hungarian parentage and nationality, or Turk of Ottoman race; (*c*) any person over 16 years of age who, on demand by an officer, fails to prove that he is the holder of a valid passport; (*d*) any person who has been deported under any Act.

Section 9 of the War Precautions Act Repeal Act also provides for prohibiting the entry of any British subject who upon being required to make and subscribe an oath or affirmation of loyalty fails to do so.

4. **Statistics.**—The following tables shew the number of persons who desired but were not permitted to land, those who were allowed to land, and the nationality of the persons admitted:—

PERSONS ADMITTED OR REFUSED ADMISSION TO COMMONWEALTH UNDER PROVISIONS OF IMMIGRATION RESTRICTION ACT, 1911 TO 1920.

Year.	Persons Admitted who Passed Education Test.	Persons Admitted without Passing Education Test.	Persons Refused Admission.
1911	Nil	139,020	83
1912	Nil	163,990	187
1913	Nil	140,251	109
1914	Nil	110,701	54
1915	Nil	70,436	56
1916	Nil	59,140	233
1917	Nil	53,036	13
1918	Nil	77,169	16
1919	Nil	223,736	27
1920	Nil	104,351	26

NATIONALITIES OF PERSONS ADMITTED WITHOUT TEST, 1912 TO 1920.

Nationality.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
EUROPEANS—									
Austrians	855	794	676	(d)27	(d)10	..	(d)3	(d)22	3
Belgians	95	63	68	105	69	35	35	31	90
British	146,602	122,443	93,136	60,505	50,489	45,988	e71,765	f217,037	g 95,879
Danes	371	444	476	305	173	137	110	124	180
Dutch	435	288	287	182	156	194	163	526	690
French	1,238	1,491	1,187	595	516	676	571	815	785
Germans	3,501	3,155	3,396	(d)890	(d)452	(d)58	(d)36	(d)54	h 115
Greeks	736	480	772	361	160	265	288	93	131
Italians	1,632	1,963	1,642	645	179	93	24	116	631
Maltese	122	193	464	57	173	212	14	47	88
Poles	17	7	12	2	..	1	3	2	27
Portuguese	9	25	12	1	..	7	8	9	9
Rumanians	24	9	34	6	8	13	9	6	10
Russians	1,159	1,334	1,446	716	407	841	199	142	121
Scandinavians	1,303	1,285	1,489	1,202	786	532	493	448	437
Spaniards	118	116	169	206	51	37	23	37	37
Swiss	209	202	220	84	40	21	39	30	90
Turks	6	5	19	1	1	..	..	(d)1	..
Other Europeans	(a)57	5	(b)165	13	7	1	..	106	197
AMERICANS—									
North Americans	1,386	1,713	1,529	1,066	1,050	870	749	1,102	1,698
South Americans	37	14	31	5	16	24	12	8	10
American Indians	9	..	1	1	..	..	..	..	6
Negroes	47	7	23	9	8	9	2	5	5
West Indians	8	1	3	2	9	1	3	5	..
ASIATICS—									
Afghans	17	7	2	3	..	..	..	..	..
Arabs	18	14	19	2	6	..	..	..	2
Burmese	..	1	1	1	..	..	..	..	..
Chinese	2,250	2,286	1,975	2,287	2,289	2,016	1,723	1,405	1,753
Cingalese	17	8	9	6	18	11	2	7	12
Eurasians	13	2	..	..	..	..	..	..	..
Filipinos	13	12	4	15	15	15	10	18	10
Hindoos	157	187	305	144	133	111	102	208	241
Japanese	698	822	387	423	1,089	888	431	521	345
Javanese	6	3	20	3	4	20	21	27	12
Malays	326	303	291	285	254	190	65	320	207
Syrians	75	31	19	5	14	13	1	6	56
Timorese	..	..	..	..	..	..	..	..	282
OTHER RACES—									
Maoris	32	41	21	16	6	2	1	..	1
Mauritians	2	7	1	..	..	..	..	..	5
Pacific Islanders	92	105	101	37	59	40	43	24	47
Papuans	196	171	169	185	178	132	133	135	30
Unspecified	(c)102	(c)214	(c)104	(c)58	(c)225	63	(c)88	(c)214	85
Total	163,990	140,251	110,701	70,436	59,140	53,036	77,169	223,736	104,351

(a) Bulgarians. (b) Including 162 Bulgarians. (c) A large percentage of these immigrants was Timorese. (d) Principally prisoners of war and their families. (e) Including 44,151 returned troops and nurses. (f) Including 163,756 troops and nurses. (g) Including 11,546 returned troops and nurses. (h) Landed for transhipment or under special authority.

The following table shews to what extent immigration has taken place into the several States of the Commonwealth from 1912 to 1920 :—

IMMIGRATION INTO THE SEVERAL STATES OF THE COMMONWEALTH, 1912 TO 1920.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	C'wealth.
1912	86,239	34,568	11,820	10,035	16,624	4,480	224	163,990
1913	73,946	29,121	10,496	8,220	15,985	2,350	133	140,251
1914	67,221	20,720	8,594	4,820	6,954	2,249	143	110,701
1915	44,899	12,028	3,963	1,847	4,358	1,925	416	70,436
1916	36,782	12,970	2,426	924	4,054	1,735	249	59,140
1917	32,825	10,701	1,814	1,540	4,761	1,133	262	53,036
1918	37,375	31,114	1,474	1,958	5,043	..	205	77,169
1919	96,331	84,751	6,007	16,897	18,507	1,163	80	223,736
1920	69,135	19,302	4,151	4,877	6,803	1	62	104,351

(C) Passports.

Provision is made in the Immigration Act 1920 (see paragraph 3 on page 1038) for requiring the production of passports by all persons over 16 years of age who are entering the Commonwealth. Similarly, the Passports Act 1920 provides that no person over the age of 16 years shall leave the Commonwealth unless—

(a) he is the holder of a passport or other document authorizing his departure; and

(b) his passport has been viséed or indorsed in the prescribed manner for that journey, and the visé or indorsement has not been cancelled.

Among the exceptions to this requirement are natural-born British subjects leaving for New Zealand, Papua, or Norfolk Island; members of the crew of any vessel who sign on in Australia for an oversea voyage and who satisfy an officer that they are by occupation seafaring men: aboriginal natives of Asia, or of any island in the East Indies, or in the Indian or Pacific Oceans. The charge for a Commonwealth passport is 10s., and for a visé 2s.

(D) Registration of Aliens.

The Aliens Registration Act 1920, which replaces the War Precautions (Aliens Registration) Regulations, was proclaimed to come into operation as from the 1st January, 1921. Aliens who have already been registered under the Regulations referred to are not required to re-register, but all other aliens residing in Australia, including their children after attaining the age of 16 years (unless natural-born British subjects) are under obligation to register at the police station nearest to their place of abode. All aliens entering the Commonwealth as passengers, master, or members of the crew of an oversea ship are registered immediately after the vessel's arrival at the first port of call in Australia. Aliens residing in Australia are required to give notice at the nearest police station before changing their place of abode. Special arrangements have been made for saving *bona fide* tourists, commercial travellers, theatrical artists, etc., from the necessity of reporting temporary changes of residence. An alien resident of Australia must not change his name without first giving notice to the aliens registration officer at the nearest police station.

§ 2. Patents, Trade Marks, and Designs.

1. **Devolution of Jurisdiction upon the Commonwealth.**—Prior to the establishment of Federation, and for a few years thereafter, each Australian State possessed independent jurisdiction in respect of patents, copyrights, trade marks, and designs, and had, with the exception of Tasmania in regard to copyrights, enacted its own laws. Any person, therefore, who desired to obtain the grant of a patent, or the registration of any copyright, trade mark, or design had necessarily, with the exception aforesaid, to incur the trouble and expense of making separate applications in each State. The Commonwealth Constitution Act conferred upon the Federal Parliament power to legislate respecting these matters. (See page 16 hereinbefore.) The Patents Act of 1909 applied the laws relating to patents for inventions to the Territory of Papua.

The State Acts, though in general based upon the Imperial Statutes dealing with these subjects, were not wholly governed by them. The Commonwealth Acts, both in regard to principle and practice, have the same general foundation as the Imperial Statutes, but in some respects have been modified and brought into line in accordance with Australian experience.

2. **Patents.**—(i) *General.* The first Commonwealth Patents Act was passed in 1903, and was amended in 1906, 1909, 1910, 1915 and 1916. (See page 34 *ante*.) Under these Acts, which are administered by a "Commissioner of Patents," the powers and functions exercised under the States Acts became vested in the Commonwealth. Comparatively small fees, totalling £8, are now sufficient to obtain for an inventor protection throughout the Commonwealth and the Territory of Papua, and the only renewal fee (£5) is payable before the expiration of the seventh year of the patent, or within such extended time, not exceeding one year, and upon payment of further fees as may be allowed. Particulars in regard to the terms under which patents are granted, publications, etc., of the Commonwealth Patents Office, have been given in full in preceding issues of the Official Year Book. (See Year Book 12, p. 1170 *et seq.*) Limits of space preclude their repetition in the present issue.

(ii) *Applications Filed, Provisional Specifications Accepted, and Letters Patent Sealed.* The numbers of individual inventions in respect of which applications were filed in the Commonwealth during each year from 1911 to 1920 inclusive are shewn in the following table. The number of applications accompanied by provisional specifications and the number of patents sealed in respect of applications made in each year are also shewn.

PATENTS.—APPLICATIONS FILED AND LETTERS PATENT SEALED IN THE COMMONWEALTH, 1911 TO 1920.

Year	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
No. of applications	3,497	4,071	4,163	3,486	3,117	2,906	3,244	3,543	4,166	5,481
No. of applications accompanied by provisional specifications	2,290	2,273	2,626	2,232	2,133	1,980	2,186	2,405	2,466	2,875
Letters patent sealed during each year	2,027	1,502	1,495	2,098	1,270	1,162	1,218	1,130	1,452	2,033

(iii) *Revenue of Patent Office.* The revenue of the Commonwealth Patent Office for each year from 1911 to the end of the year 1920 is shewn in the subjoined table:—

REVENUE OF COMMONWEALTH PATENT OFFICE, 1911 TO 1920.

Particulars.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Fees collected under—	£	£	£	£	£	£	£	£	£	£
States Patents Acts ..	768	118	50	16	19	15	11	15	4	31
Patents Acts 1903–16	19,640	18,542	18,800	21,575	15,463	14,055	15,629	16,223	19,764	27,100
Receipts from publications	237	305	283	274	298	294	281	317	414	417
Petty receipts	48	50	49	81	6	4	..	..	..	..
Total ..	20,693	19,015	19,182	21,946	15,786	14,368	15,921	16,555	20,182	27,548

3. Trade Marks.—The remarks made concerning the unification of the patent system of the Commonwealth apply equally to trade marks. Under the Trade Marks Act 1905, which came into force on the 2nd July, 1906, the Commissioner of Patents is appointed to act also as "Registrar of Trade Marks." The Trade Marks Act of 1905 was amended by the Patents, Trade Marks, and Designs Act 1910, assented to on the 14th November, 1910, by the Trade Marks Act 1912, and by the Trade Marks Act 1919, and is now cited as the Trade Marks Act 1905–1919. The principal objects of the amending Act were to enlarge the scope of marks capable of registration, and repeal the provisions of the Act of 1905 relating to the "Workers Trade Mark," the provisions regarding which were held to be unconstitutional. Special provisions for the registration of a "Commonwealth Trade Mark" are contained in the Act of 1905 and are applicable to all goods included in or specified by a resolution passed by both Houses of Parliament that in their opinion the conditions as to remuneration of labour in connexion with their manufacture are fair and reasonable. (See also Official Year Book 12, p. 1173.)

4. Designs.—The Designs Act of 1906 came into operation on the 1st January, 1907, being subsequently amended by the Patents, Designs and Trade Marks Act 1910, and the Designs Act 1912, and is now cited as the Designs Act 1906–12. Under this Act a Commonwealth Designs Office has been established and the Commissioner of Patents appointed "Registrar of Designs." (See also Official Year Book 12, p. 1174.)

5. Applications for Trade Marks and Designs.—The following table gives particulars of applications for trade marks and designs received and registered under the Commonwealth Acts from 1911 to 1920 inclusive:—

APPLICATIONS FOR TRADE MARKS AND DESIGNS RECEIVED AND REGISTERED UNDER COMMONWEALTH ACTS, 1911 TO 1920.

Applications.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
					RECEIVED.					
Trade Marks ..	1,977	1,803	1,957	1,619	1,526	1,636	1,532	1,739	2,634	3,045
Designs ..	203	235	301	267	326	298	266	262	256	278
					REGISTERED.					
Trade Marks ..	1,323	1,389	1,468	1,272	1,015	1,126	1,033	1,095	1,229	1,651
Designs ..	180	211	281	220	266	253	236	223	203	226

The following table shews the revenue of the Trade Marks and Designs Office during the years 1916 to 1920 :—

REVENUE OF TRADE MARKS AND DESIGNS OFFICE, 1916 TO 1920.

Particulars.	1916.			1917.			1918.			1919.			1920.		
	Trade Marks.	Designs.	Publications.	Trade Marks.	Designs.	Publications.	Trade Marks.	Designs.	Publications.	Trade Marks.	Designs.	Publications.	Trade Marks.	Designs.	Publications.
	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£
Fees collected under State Acts ..	21	..	..	28	..	..	14	..	..	192	..	..	9	..	..
Fees collected under Commonwealth Acts	4,280	354	89	3,978	312	94	4,330	318	114	5,314	346	101	12,607	368	107
Total ..	4,301	354	89	4,006	312	94	4,344	318	114	5,506	346	101	12,616	368	107

6. **Enemy Patents and Trade Marks.**—On the outbreak of the European war the Commonwealth Government deemed it advisable to extend the powers of the Governor-General of the Commonwealth during the continuance of hostilities with reference to patents, trade marks, and designs, the property of alien enemies.

Acts Nos. 15 and 16 of 1914 were accordingly passed by the Commonwealth Parliament in November, 1914, giving the Governor-General power to make the necessary regulations. Further information in this connexion will be found in Year Book No. 13, p. 1104.

§ 3. Copyright.

1. **Copyright Legislation.**—Prior to the 1st January, 1907, the date on which the Commonwealth Copyright Act of 1905 came into operation, the subject of copyright was regulated by the laws of the separate States. In general, the provisions of State laws were similar to those of the Imperial Copyright law, including the law of 1842 and the earlier unrepealed or subsequent Acts, the most important of which were the Colonial Copyright Act 1847 and the International Copyright Act of 1886. They were also generally included under the British international relations embracing the Berne-Paris provisions of the International Copyright Union and the reciprocal relations with the United States of America, with the exception that in the Austria-Hungary Treaty, New South Wales and Tasmania were not parties, because they did not exercise the right of ratification especially reserved to individual colonies.

Though the Commonwealth Copyright Act of 1905 took the place of the State Copyright Acts formerly in force, it left unaffected existing rights under the State laws, but transferred the administration thereof to the Commonwealth. Provision was also made under the law of 1905 for the registration of International and State copyrights. The principal features of the Act of 1905 are given in previous issues of the Year Book (see No. 9, p. 1119). This Act was repealed by the Copyright Act of 1912, which was assented to and became operative on the 20th November, 1912. Subject to modifications relating to procedure and remedies, the Commonwealth law of 1912 adopted the British Copyright Act of 1911, and declared the latter law to be in force within the Commonwealth as from the 1st July, 1912. The British Act extends throughout the whole of His Majesty's dominions, but it is not to be in force in a self-governing dominion unless enacted by the legislature thereof either in full or with modifications relating exclusively to procedure and remedies necessary to adapt the Act to the circumstances of the dominion. (See also Official Year Book No. 12, p. 1176.)

By an Order-in-Council made by the Government of the Commonwealth of Australia, simultaneously with the issue of a Proclamation by the President of the United States of America on the 15th March, 1918, reciprocal protection was extended to citizens of the respective countries in regard to unpublished literary, dramatic, musical and artistic works in which copyright existed on the date mentioned, or may thereafter subsist under the laws of these countries. The enjoyment of the rights conferred by the Order-in-Council is subject to the accomplishment of the conditions and formalities prescribed by law of the United States of America, or, in other words, registration at the Library of Congress, Washington, D.C., U.S.A., is made a condition precedent to the protection of Australian copyright property in the United States of America.

Further details relative to the provisions of the Act of 1912 will be found in previous issues of the Year Book (see No. 8, p. 1066).

2. **Applications for Copyright.**—The following table gives particulars of copyright applications received and registered under the Commonwealth Acts from 1916 to 1920 inclusive :—

APPLICATIONS FOR COPYRIGHT RECEIVED AND REGISTERED UNDER COMMONWEALTH ACTS, 1916 TO 1920.

Year.	Copyrights. Literary.	Artistic.	International and State.	Total.
	APPLICATIONS RECEIVED.			
1916	845	180	..	1,025
1917	835	141	..	976
1918	816	261	4	1,081
1919	923	216	1	1,140
1920	922	203	..	1,125
	APPLICATIONS REGISTERED.			
1916	797	168	..	965
1917	793	140	..	933
1918	750	232	3	985
1919	850	197	..	1,047
1920	879	185	..	1,064

The revenue from copyright for the years 1916, 1917, 1918, 1919, and 1920, was £268, £256, £309, £284 and £287 respectively.

§ 4. Old-age and Invalid Pensions.

1. **General.**—In previous issues an account has been given of the introduction of the old-age pension system into Australasia, together with a detailed description of the Commonwealth Invalid and Old-age Pensions Act of 1908, which became operative on 1st July, 1909. (See Year Books, Nos. 3 to 8.) An amendment of this Act, assented to on 30th September, 1916, made a very important alteration. Section 24 originally enacted that the pension "shall not exceed the rate of twenty-six pounds per annum in any event, nor shall it be at such a rate as will make the pensioner's income, together with pension, exceed fifty-two pounds per annum." It was amended (*a*) by omitting the words "twenty-six pounds," and inserting in their stead the words "thirty-two pounds ten shillings", and (*b*) by omitting the words "fifty-two pounds" and inserting in their stead the words "fifty-eight pounds ten shillings." Section 26 originally enacted that if an applicant for pension was in receipt of board or lodging, the actual or estimated

value or cost of this should be counted as income, to an extent not exceeding five shillings per week. This was amended by omitting the words " five shillings " and inserting in their stead the words " seven shillings and sixpence."

In 1919 the Act was again amended and the rate of pension raised to £39 per annum and the maximum amount allowable to £65 per annum. The estimated value of board and lodging was raised to 10s. per week.

In 1920 special provision was made for permanently blind persons, by which the amount of pension may be at such a rate (not exceeding £39) per annum, as will make his income, together with the pension, equal to an amount not exceeding £221 per annum, or such other amount as is declared to be a basic wage.

2. **Amounts of Old-age Pensions.**—Details regarding Old-age Pensions for the several States as at 30th June, 1920, are as follows :—

COMMONWEALTH OLD-AGE PENSIONS, YEAR ENDING 30th JUNE, 1920.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Claims examined during year ending 30th June 1920 ..	5,973	3,820	2,093	1,204	820	603	14,513
Claims rejected	657	379	457	149	110	56	1,808
Claims granted	5,316	3,441	1,636	1,055	710	547	12,705
Transfers from other States	430	331	160	167	103	57	1,248
Existing 30th June, 1919 ..	35,522	29,179	12,317	9,610	4,518	4,823	95,969
	41,268	32,951	14,113	10,832	5,331	5,427	109,922
To be deducted—							
Deaths	3,033	2,547	1,017	668	320	370	7,955
Cancellations and transfers to other States ..	877	839	374	336	220	151	2,797
	3,910	3,386	1,391	1,004	540	521	10,752
Old-age Pensions existing on 30th June, 1920 ..	37,358	29,565	12,722	9,828	4,791	4,906	99,170

3. **Sexes of Old-age Pensioners.**—Of the 99,170 persons in receipt of pensions at 30th June, 1920, 39,217 (or 39½ per cent.) were males, and 59,953 (or 60½ per cent.) were females. Details for the several States are as follows :—

SEXES OF OLD-AGE PENSIONERS, 30th JUNE, 1920.

State.	Males.	Females.	Total.	(a)Masculinity
New South Wales	15,515	21,843	37,358	71.03
Victoria	11,135	18,430	29,565	60.42
Queensland	5,384	7,338	12,722	73.37
South Australia	3,535	6,293	9,828	56.17
Western Australia	1,965	2,826	4,791	69.53
Tasmania	1,683	3,223	4,906	52.22
Total	39,217	59,953	99,170	65.40

(a) Number of males to each 100 females.

4. Ages and Conjugal Condition of Old-age Pensioners Granted Pensions during 1919-20.—The recorded ages of the 12,705 persons to whom pensions were granted during the year 1919–20 varied considerably, ranging from 2,327 at age 60 to one at age 96. Particulars for quinquennial age-groups are as follows :—

AGES AND CONJUGAL CONDITION OF PERSONS GRANTED OLD-AGE PENSIONS DURING 1919-20.

Age Groups.	Males.				Females.				Grand Total.
	Single.	Married.	Widowed.	Total.	Single.	Married.	Widowed.	Total.	
60–64 ..	93	186	77	356	477	2,250	2,239	4,966	5,322
65–69 ..	675	2,138	642	3,455	140	725	608	1,473	4,928
70–74 ..	168	544	239	951	50	206	311	567	1,518
75–79 ..	45	187	106	338	22	79	183	284	622
80–84 ..	16	47	55	118	3	18	92	113	231
85–89 ..	2	13	15	30	..	4	35	39	69
90 and above ..	..	3	7	10	..	..	5	5	15
Total ..	999	3,118	1,141	5,258	692	3,282	3,473	7,447	12,705

5. **Commonwealth Claims for Invalid Pensions.**—Details as at 30th June, 1920, are given hereunder :—

COMMONWEALTH INVALID PENSIONS.—YEAR ENDING 30th JUNE, 1920.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Total C'wealth.
Claims examined during year ending 30th June, 1920 ..	3,300	2,566	1,473	452	544	415	8,750
Claims rejected	863	544	440	121	129	120	2,217
Claims granted	2,437	2,022	1,033	331	415	295	6,533
Transfers from other States..	110	90	45	32	10	14	301
Existing 30th June, 1919 ..	13,098	9,337	4,051	2,151	1,500	1,862	31,999
	15,645	11,449	5,129	2,514	1,925	2,171	38,833
Deduct—							
Deaths	912	826	310	127	98	126	2,399
Cancellations and Transfers to other States ..	396	346	195	129	39	98	1,203
	1,308	1,172	505	256	137	224	3,602
Invalid Pensions existing 30th June, 1920	14,337	10,277	4,624	2,258	1,788	1,947	35,231

6. **Sexes of Invalid Pensioners.**—Of the 35,231 persons in receipt of an invalid pension on 30th June, 1920, 16,501, or 47 per cent., were males, and 18,730, or 53 per cent., were females. Details for the several States are as follows :—

SEXES OF INVALID PENSIONERS, 30th JUNE, 1920.

State.	Males.	Females.	Total.	(a)Masculinity.
New South Wales	6,583	7,754	14,337	84.90
Victoria	4,932	5,345	10,277	92.27
Queensland	2,361	2,263	4,624	104.33
South Australia	829	1,429	2,258	65.80
Western Australia	932	856	1,788	108.88
Tasmania	864	1,083	1,947	79.78
Commonwealth	16,501	18,730	35,231	88.10

(a) Number of males per 100 females.

7. **Ages and Conjugal Condition of Persons Granted Invalid Pensions during 1919-20.**—The recorded ages of the 6,533 persons who received invalid pensions in the period under review varied from 16 to 81. The following table gives particulars for those up to age 20 and in decennial age-groups after age 20 :—

AGES AND CONJUGAL CONDITION OF PERSONS GRANTED INVALID PENSIONS IN 1919-20.

Age Groups.	Males.				Females.				Grand Total.
	Single.	Married.	Widowed.	Total.	Single.	Married.	Widowed.	Total.	
16–19 ..	212	..	..	212	219	..	..	219	431
20–29 ..	237	43	11	291	313	20	14	347	638
30–39 ..	164	190	11	365	229	67	80	376	741
40–49 ..	184	300	24	508	202	133	198	533	1,041
50–59 ..	324	575	147	1,046	244	506	638	1,388	2,434
60–69 ..	303	512	147	962	22	90	94	206	1,168
70–79 ..	9	18	20	47	8	8	14	30	77
80 and over ..	..	..	1	1	1	..	1	2	3
Total ..	1,433	1,638	361	3,432	1,238	824	1,039	3,101	6,533

8. **Cost of Administration.**—Under the State régime the cost of administration differed considerably in the several States, and for 1908-9 represented in New South Wales 4.17 per cent. of the amount actually paid in pensions. In Victoria for the same year the corresponding percentage was 0.70. During the year 1919–20 the total cost to the Commonwealth of administering the Old-age and Invalid Pensions Department was £74,120, or about 1.6 per cent. of the amount actually paid in pensions. Details concerning the cost of administration for 1919–20 are as follows :—

	£
Salaries	25,987
Temporary assistance	4,565
Services of magistrates, registrars, clerks of courts, and police ..	3,861
Commission to Postmaster-General's Department, at 12s. 6d. per £100 paid	24,812
Postage and telegrams	4,597
Other expenses	10,298
Total	£74,120

The actual sum disbursed in Old-age and Invalid Pensions in the financial year 1919–20, apart from the cost of administration, was £4,411,629.

The following table gives detailed statistical information concerning the working of the Act for the last five years :—

INVALID AND OLD-AGE PENSIONS, 1916 TO 1920.

Financial Year ended 30th June—	Number of Pensioners.			Amount Paid in Pensions.	Amount Paid to Asylums for Maintenance of Pensioners.	Total Payment to Pensioners and Asylums.	Cost of Administration.	Cost of Administration per £100 paid to Pensioners and Asylums.	Average Fortnightly Pension on last day of Financial Year.
	Old-Age.	Invalid.	Total.						
				£	£	£	£	£ s. d.	s. d.
1916	91,783	23,439	115,222	2,859,766	31,831	2,891,597	44,401	1 10 9	19 4
1917	93,672	26,781	120,453	3,518,987	35,148	3,554,135	54,393	1 10 7	24 3
1918	95,387	29,912	125,299	3,753,977	39,060	3,793,037	54,355	1 8 8	24 3
1919	95,969	31,999	127,968	3,880,865	55,750	3,936,615	63,280	1 12 2	24 2
1920	99,170	35,231	134,401	4,411,629	72,675	4,484,304	74,120	1 13 1	29 1

§ 5. Maternity Allowance.

The Federal Parliament, during the session of 1912, passed an Act (assented to on 10th October, 1912) providing under certain circumstances for the payment of maternity allowances. The scope and main provisions of the Act will be gathered from the following sections and sub-sections, given in full :—

4. "Subject to this Act, there shall be payable out of the Consolidated Revenue Fund, which is hereby appropriated accordingly, a maternity allowance of Five pounds to every woman who, after the commencement of this Act, gives birth to a child, either in Australia or on board a ship proceeding from one port in the Commonwealth or a Territory of the Commonwealth to another port in the Commonwealth or a Territory of the Commonwealth."

5. (1) "A maternity allowance shall be payable in respect of each occasion on which a birth occurs, and the child is born alive, or is a viable child, but only one allowance shall be payable in cases where more than one child is born at one birth."

6. (1) "The maternity allowance shall be payable only to women who are inhabitants of the Commonwealth or who intend to settle therein."

(2) "Women who are Asiatics or are aboriginal natives of Australia, Papua, or the islands of the Pacific, shall not be paid a maternity allowance."

The following table gives a statistical summary of the most important points in connexion with the working of the Maternity Allowance Act since 10th October, 1912, when the first payments were made :—

COMMONWEALTH MATERNITY ALLOWANCE.—SUMMARY, 1913 TO 1920.

Year ended 30th June—	Claims Paid.	Claims Rejected.	Amount Paid.	Cost of Administration.	Cost per £100 of allowance paid.
			£	£	£ s. d.
1913 (a)	82,475	619	412,375	6,547	1 11 9
1914	134,998	709	674,990	10,281	1 10 6
1915	138,855	640	694,275	12,900	1 17 2
1916	131,943	504	659,715	12,165	1 16 11
1917	132,407	459	662,035	13,735	2 1 6
1918	126,885	404	634,425	12,250	1 18 7
1919	124,016	510	620,080	11,369	1 16 8
1920	125,173	621	625,865	12,785	2 0 10

(a) From 10th October, 1912.

§ 6. War Pensions.

1. **General.**—An Act for the provision of war pensions was passed in 1914 and amended in 1915 and 1916. Its scope can be determined by the following extract from Section 3. "Upon the death or incapacity of any member of the forces whose death or incapacity results, or has resulted, from his employment in connexion with warlike operations in which His Majesty is, or has since the commencement of the present state of war been engaged, the Commonwealth shall, subject to this Act, be liable to pay to the member or his dependents, or both, as the case may be, pensions in accordance with this Act." Full details as to rates of pension, etc., are given in the section on Defence, page 934.

2. **Number of Pensioners, 1920.**—The following statistical tables shew the position of affairs as at the 30th June, 1920 :—

PARTICULARS OF WAR PENSIONERS AT 30th JUNE, 1920.

Classification.	In respect of Deceased Members.	In respect of Incapacitated Members.	Total.
(i) Dependents of members of the Forces—			
(a) Wives or widows	8,498	35,689	44,187
(b) Children under 16 years	12,445	44,454	56,899
(c) Children over 16 years	222	186	408
(d) Widowed mothers of unmarried members	7,455	1,979	9,434
(e) Other mothers of members	14,585	3,095	17,680
(f) Fathers	3,418	171	3,589
(g) Brothers and sisters	1,346	380	1,726
(h) Others	774	494	1,268
Total number of dependents of members of the Forces	48,743	86,448	135,191
(ii) Incapacitated members of the Forces	..	90,389	90,389
Total number of war pensioners at 30th June, 1920	48,743	176,837	225,580

NUMBER OF WAR PENSIONERS AT 30th JUNE, 1920.

Where Paid.	Incapacitated Members of the Forces.	Dependents of—		Total.
		Deceased Members.	Incapacitated Members.	
Canada	25	49	23	97
South Africa	33	43	36	112
New Zealand	206	241	158	605
New South Wales	30,012	13,297	26,322	69,631
Victoria	29,949	15,062	29,215	74,226
Queensland	10,242	4,340	8,551	23,133
South Australia	6,070	4,225	6,499	16,794
Western Australia	8,812	4,334	9,165	22,311
Tasmania	3,751	2,111	3,689	9,551
London	1,289	5,041	2,790	9,120
Total	90,389	48,743	86,448	225,580

EXPENDITURE IN 1919-20.

	£		£
New South Wales ..	..1,826,111	Tasmania	.. 259,554
Victoria	..1,861,377	London and elsewhere	.. 273,430
Queensland	.. 664,093		
South Australia ..	.. 444,882	Total ..	.. 5,872,770
Western Australia ..	.. 543,323		

The cost of administration in 1919-20 was £118,619.

§ 7. Local Option.

1. **General.**—The principles of local option as to the sale of fermented and spirituous liquors have been applied in all the States of the Commonwealth. The last State to adopt these principles was Western Australia, where provision was made for a system of local option by the Licensing Act 1911. Upon the outbreak of war in 1914, various enactments were made in several of the States relative to the control of the liquor traffic. While not in any way pertaining to the scheme of local option, these measures are probably affecting public opinion in regard to this matter.

2. **New South Wales.**—(i) *Local Option.* The Act in force relating to local option in this State is the Liquor Act 1912, which consolidated the laws relating to publicans, brewers, and other persons engaged in the brewing, manufacture or sale of liquor. The local option vote is taken in every electorate on the day fixed for the poll therein at each general election, but special provision was made under the Liquor Amendment Act 1916 to suspend the taking of the local option vote at the general election in 1917. The option with regard to licenses extends to public-houses, wineshops, and clubs, and the persons entitled to vote are those entered on the Parliamentary electoral rolls. The first local option vote under the Liquor (Amendment) Act of 1905 was taken at the general election in 1907, and the second at the election in 1910, while the vote in 1913 was taken under the Liquor Act 1912. In 1907, when the first local option vote was taken, there were 3,023 hotels in existence; of this number 293 were ordered to be closed at varying dates. At the election of 1910 there were 2,869 hotels, and of these, 28 were ordered to be closed. At the 1913 election there were 2,719 hotels, of which 23 were closed before July, 1917. The number of wine licenses at the time of the vote of 1907 was 633, of which

46 were abolished. In 1910, 5 wine shops out of 565 were closed, and in 1913, 7 out of 514 were ordered to be closed. The resolutions to be submitted, and the effects of such resolutions, if carried, are given *in extenso* in previous issues of this book. The following statement shews the number of electorates in which each of the resolutions was carried :—

NEW SOUTH WALES.—EFFECTS OF LOCAL OPTION VOTES, 1907, 1910, and 1913.

Particulars.	General Election, 1907.		General Election, 1910.		General Election, 1913.	
	Electorates.	Votes.	Electorates.	Votes.	Electorates.	Votes.
Results in favour of—						
(*a*) Continuance ..	25	209,384	76	324,973	75	380,707
(*b*) Reduction ..	65	75,706	14	38,856	15	44,453
(*c*) No license ..	Nil	178,580	Nil	212,889	Nil	245,202

(ii) *Liquor Referendum Act 1916.* On 17th February, 1916, a proclamation was issued, in terms of the War Precautions Act, by the Minister for Defence, ordering that licensed premises be closed at 6 p.m. in the County of Cumberland, and within a radius of 5 miles from any military camp; a week later the closing hour was varied from 6 to 8 p.m. Subsequently the Liquor Referendum Act 1916 was passed in the State Parliament to decide by referendum the hour of closing for premises licensed under the Liquor Act 1912. At the referendum the electors were enabled to record votes in order of preference for each hour from 6 to 11 p.m. inclusively. The count of the first preference votes resulted in a large majority for 6 o'clock, and from 21st July, 1916, all licensed premises and registered clubs in New South Wales have been closed at that hour.

(iii) *Liquor Amendment Act 1919.* This Act, which was assented to on the 23rd December, 1919, provides for the continuance of the six o'clock closing of hotels, and suspends Local Option pending a referendum on the question of prohibition, which must be taken within eighteen months after the passing of the Act. Other clauses provided for the establishment of the Licences Reduction Board and the Compensation Assessment Board, the former to regulate the number of licences, to determine the amount of compensation to be paid in cases where cancellations are recommended and to fix compensation fees payable by licensees; and the latter to assess the cost to the State for compensation if prohibition be carried. The Government has announced that it does not intend to take the referendum provided for in the Act.

3. **Victoria.**—The Acts dealing with the subject of local option as to the sale of fermented and spirituous liquors, and with the compulsory closing of hotels in this State, are the Licensing Act 1915, No. 2683, and the Licensing Act 1916, No. 2855.

Part XIII. of the Act of 1915 relates to the subject of local option. Under this Part the local option provisions were to come into operation at the first general election subsequent to 1st January, 1917. The 1916 Act provided that the first local option polls were not to be held till the second general election following on the above date. In the meantime, the Licenses Reduction Board, which by the same Act was constituted the Licensing Court for the whole State, was empowered to continue the work of closing hotels, which it has carried out since 1906.

The provision of a statutory number of hotels for each licensing district disappeared with the old conditions relating to closing, Part XIII. providing that the number of licences of the different descriptions existing on 1st January, 1917, should not thereafter be exceeded. The Court, up to the election on 21st October, 1920, was authorized to close hotels in any licensing district, as if resolution B (Reduction), under the local option provisions, had been carried in each district. This allows of a reduction proportionate to the existing number, the maximum closing not to exceed one-fourth. Power has also been given to accept the surrender of any victualler's license irrespective of the

number otherwise closed. A greater number must not be closed than can be compensated, and the old limitation, that hotels licensed after 1886 were not entitled to compensation, has been removed.

(i) *The Licenses Reduction Board.* This Board was established by the 1906 Act, with power to reduce the number of licensed victuallers' premises, up to December, 1916, in districts where there were more than the statutory number of licenses. It had also the duty of fixing and awarding compensation to the owners and licensees of the closed hotels. The compensation was provided by an annual percentage fee of 3 per cent. on all liquor purchased by licensed victuallers. The compensation fund obtained in this manner has risen from £48,233 in 1907, to £63,623 in 1915, which was the highest figure reached. In 1916, with the restricted hours of trading, the amount received was £60,396. The licensing fund which was distinct from the compensation fund, was protected by a provision that the remaining hotels, by a *pro rata* assessment, had to make up annually the amount of the license fees lost by the closing of hotels; the license fees for hotels were of varying amounts, based on the annual municipal value of the premises, ranging from £5 to £50, in four classes, viz., £5, £15, £25, £50. By the 1916 Act, this system of fixed fees was abolished, as was also the *pro rata* assessment of lost fees and the 3 per cent. compensation fees. The two funds referred to above were merged into one, and a system of percentage fees was applied to all licenses for the sale of liquor in the State, whether wholesale or retail, and the amount received is paid into one fund. The expenses of operating the Licensing Act are a charge on this fund. In addition, £23,000 is paid annually to the Police Superannuation Fund, and £68,000 to municipalities which formerly granted licences. The balance, amounting in 1920 to £94,000, is available for compensation to owners and licensees of closed hotels.

All vendors of liquor pay in proportion to the benefit they derive from the license. The amount charged the wholesale trade is 4 per cent. on the cost of all liquors sold to non-licensed persons, no charge being made on sales to other licensed vendors. The retail trade is charged 6 per cent. on liquor purchases, except the holders of Australian wine licenses, who are charged 4 per cent.

The maximum compensation payable is still governed by the trading results and the rents of the years 1903–6, though a concession was made in the Amending Act by which licensees are entitled to be compensated on a three years' tenure, if they are in possession of a lease of that extent when deprived of their license. Under the 1916 Act 317 hotels have been closed and £210,575 awarded as compensation to 316 hotels, there being no claim as to one hotel. The total number of hotels closed up to the 31st December, 1920, was 1,371, and the compensation paid, £751,426, or an average of £548 per hotel. The following table shews particulars of the operations of the Board and Court up to the 31st December, 1920:—

VICTORIA.—OPERATIONS OF LICENSES REDUCTION BOARD, 31st DECEMBER, 1920.

Particulars.	Licenses in December, 1906.			Hotels Deprived of Licenses.	Compensation Awarded.		Hotels Surrendered.	Compensation Awarded.	
	Number in Existence.	Statutory Number.	(a) Number in Excess.		Owner.	Licensee.		Owner.	Licensee.
					£	£		£	£
Metropolitan and Suburban ..	1,020	877	401	371	280,692	60,358	17	8,673	1,884
Country ..	2,428	1,622	967	646	257,058	41,687	(b) 337	90,618	10,456
Total ..	3,448	2,499	1,368	1,017	537,750	102,045	354	99,291	12,340

(a) In some districts the number of hotels was below the statutory number; in these districts the total number of hotels less than the statutory number was 418. (b) Including 6 Roadside licenses.

(ii) *Early Closing of Hotels.* Consequent on the war, an Act (No. 2584) was passed, and came into operation on 6th July, 1915, restricting the hours for the sale of intoxicating liquors, the restriction being limited to the duration of the war. Sale was permitted

only between the hours of 9 a.m. and 9.30 p.m. By a subsequent Act (No. 2776), tenants of licensed premises were given the right to apply to the Licenses Reduction Board to adjust the rents of their premises. Four hundred licensees took advantage of this provision. The hours of trading in the evening were further restricted as from 25th October, 1916—six o'clock being fixed as the time of closing. These hours were made permanent by the 1919 Act.

The provisions of the Rent Adjustment Act were extended so as to enable the Board to deal with applications for reductions of rent arising from fresh restrictions. Between 300 and 400 additional applications were received, the amounts involved being substantial.

Special provision was made in the 1916 Act for the granting of victuallers' licenses in the Mallee. Power was given to proclaim areas containing 500 resident electors, when petitions signed by a majority of the residents were lodged, and where the Licensing Court, after enquiry, recommended this course.

On the proclamation of an area, a poll of the electors is to be taken at which, if the poll is to be recognised, one-third of those enrolled must vote. A majority of those voting decides whether a license is to issue or not. Hotels must be at least twelve miles apart, except at Mildura, where special provision is made for the issue of three licenses. Under these provisions six areas have been proclaimed, in five of which polls were taken and resulted in favour of license. Licenses have now been granted at Mildura, Murrayville, Ouyen, Manangatang, and Ultima.

The first local option poll under Part XIII. of the 1915 Act was held at the General Election on 21st October, 1920. In one of the licensing districts—Peechelba— there are no licenses. In the 216 remaining licensing districts the result was as follows:—Continuance, 143; Reduction, 71; No Licence, 2. The total votes for each resolution were Continuance, 278,707; Reduction, 36,025; No Licence, 212,254.

4. **Queensland.**—The local option clauses of the Liquor Acts of 1912–1914 provide for the following:—

(i) The conditions under which new licenses may be granted until the completion of the business of the Licensing Court in April, 1916.

(ii) The continuance of the local option clauses of the Licensing Act of 1885 until the 31st December, 1916.

(iii) The institution of a new scheme, under which electors from and after the year 1917 will have the opportunity of voting every three years on the question of reduction or increase of licenses.

(i) *New Licenses.* With regard to the granting of "new licenses" from the 1st April, 1913, and until the completion of the business of the Licensing Court in April, 1916, it was provided that no new licensed victualler's or wine seller's or provisional licenses should be granted, unless at a local option vote of the electors of the local option area in which the premises or proposed premises are situated a resolution "that new licenses shall be granted in this local option area" were carried.

If the resolution were carried, the Court might, but need not, grant applications; but if the resolution were not carried, the Court might not grant any application during the said years in the said local option areas.

The Acts of 1912 and 1914 provided that a local option vote following on an application for a license might be taken in any of the years 1913, 1914, 1915, and 1916 in a local option area, but having been taken once should not be taken again during those years in the same local option area. During 1913 a vote was taken in ten districts on the resolution "that new licenses be granted." In five of these the resolution was carried, the other five districts declaring against any increase in the number of licenses. In 1914, sixteen districts voted on the same resolution, in eleven of which it was carried, while in 1915, sixteen districts also voted, the resolution being carried in ten cases.

(ii) *Continuance of Present System until 1917.* With the exception of the third resolution, viz., "that no new licenses be granted," the local option provisions of the Licensing Act of 1885 remained in full force and effect until the 31st December, 1916, with certain modifications and additions. These will be found fully described in previous issues of the Year Book (see No. 6, p. 1177).

(iii) *General Local Option.* The first vote might be taken in the year 1917, either on the same day as the election of senators, or if no Senate election were held in 1917 before the 30th September, then on a day to be appointed by the Governor-in-Council.

The vote should be taken on the request of one-tenth of the number of electors in an area, which was defined in the request, and such area might be :—(*a*) an electoral district, (*b*) an electoral division of an electoral district, or (*c*) a group of two or more divisions of an electoral district, provided that the whole of such local option area were wholly comprised within one and the same electoral district.

There should be a separate request for each resolution on which a vote was required to be taken.

The resolutions on which a vote might be taken were :—(*a*) reduction by one-fourth of the existing number, (*b*) further reduction by one-fourth of the existing number, (*c*) further reduction by one-fourth of the existing number, (*d*) prohibition, and (*e*) new licenses.

On the 5th May, 1917, 57 polls were taken, 55 being on the question of reduction and two being on the question of increase. Reduction was carried in only four local option areas. The total number of licenses which ceased to exist as from 1st January, 1920, was 17. Increase was carried in two areas.

In previous issues of the Year Book (see No. 6, p. 1178) will be found fuller reference to the effect of the carrying of any of the resolutions.

On the 13th December, 1919, twelve polls were taken, eleven being on the question of increase or new licenses and one on the question of reduction of licenses. Increase was carried in five local option areas, but in two of these a sufficient number of electors did not vote, 35 per cent. being required under Section 175 of the Liquor Acts. The poll in one area resulted in a majority against reduction.

The Liquor Act Amendment Act of 1920 provides that every local option vote must be taken in the month of May in every third year, on a day to be fixed by the Governor in Council, but no vote may be taken on the same day as the State General Election or a Commonwealth General or Senate Election.

(iv) *State Option, Prohibition, and Continuance of Present System.* The Liquor Act Amendment Act of 1920 provides for triennial polls throughout the State on the following resolutions :—

(*a*) State management of manufacture, importation, and sale of fermented and spirituous liquors.

(*b*) Prohibition of manufacture, importation, and retail of fermented and spirituous liquors to take effect from 1st July, 1925, in case of the poll in 1920 or 1923, and for subsequent polls from 1st July in the third year after the carriage of resolution (*b*).

(*c*) Continuance of the present (or if (*a*) or (*b*) has been carried—return to the earlier) system of manufacture, importation and retail of fermented and spirituous liquors.

The first poll under this provision was held on 30th October, 1920, that date having been fixed by the Governor in Council. Voting was compulsory under a compulsory preferential system. State management was everywhere defeated. In 14 areas majorities were recorded for (*b*); and in 58 areas continuance was carried with a majority for the whole State of 38,092 votes.

5. **South Australia.**—In this State the subject of local option is now regulated by Part VIII. of the Licensing Act 1917.

Under this Act, each electoral district for the House of Assembly is constituted a local option district, and each electoral district may be divided into local option districts by proclamation of the Governor. A quorum consisting of 500 electors, or one-tenth of the total number of electors, whichever be the smaller number, in any district may petition to the Governor for a local option poll. The persons entitled to vote at the poll are those whose names appear on the electoral roll and who reside in the local option district.

The resolutions to be submitted, together with the effects such resolutions would have, are set out in detail in previous issues of the Year Book (see No. 6, p. 1179).

(i) *Local Option Poll.* On the 2nd April, 1910, local option polls were taken under the Act of 1908 in twenty-four districts; the electors in the remaining nine local option districts did not petition for polls. A resolution that the number of licenses be reduced was carried in only one district; in the remaining twenty-three districts a resolution that the number of licenses be not increased or reduced was carried. At the general election of the House of Assembly, held on the 10th February, 1912, no local option polls were held in any local option district. On the 27th March, 1915 (the same day as the Parliamentary elections), a local option poll was taken in the Flinders Southern (Port Lincoln) local option district, when the resolution "that the number of licenses be not increased or reduced" was carried. There have been no further polls in any of the districts up to the end of 1920.

(ii) *Early Closing of Hotels.* On the 27th March, 1915, a referendum was held as to the hour for the closing of bar-rooms in licensed premises. Out of a total of 178,362 votes cast, 100,418 were cast in favour of closing bar-rooms at 6 p.m., those in favour of closing at 11 p.m. being 61,362. Electors had the choice of voting for hours other than the two mentioned, but the votes so cast were comparatively few. No polls have since been taken.

(iii) *Re-proclamation of Districts.* Local option districts were re-proclaimed on the 29th November, 1917, the districts, which number thirty-five, being given in the *Government Gazette* of the same date.

6. **Western Australia.**—The law relating to local option in Western Australia is contained in Part V. (sections 75 to 86) of the Licensing Act 1911, which was assented to on 16th February, 1911, and came into force on the 7th April following. Prior to the passing of this Act there was no provision for any system of local option in Western Australia.

The resolutions to be submitted under the above-mentioned Act and the effect such resolutions would have, are given in detail in previous issues of the Year Book (see No. 6, p. 1180).

The first vote under the Act of 1911 was a limited poll, taken on 26th April, 1911, the main question being confined (as prescribed by the Act when the vote is taken prior to 1920) to a resolution "that the number of licences be increased," the only other questions submitted being those of State control of new publicans' general licenses and State management throughout all licensing districts. Only one district voted for increase, and there were majorities for State control and State holding of all new publicans' general licenses. On 30th April, 1921, the first full poll was taken, and in accordance with the provisions of the Act the four main questions were Continuance, Increase, Reduction, or No License. The resolutions for Continuance, Reduction, or Increase were carried if a majority in the number of votes cast was in favour of any of those resolutions. No License, however, was not carried unless three-fifths of the votes cast were in favour thereof and moreover 30 per cent. of the electors in the district had voted for the resolution. Where resolution D (No License) was not carried the votes in favour of it were to be added to the votes for resolution C (Reduction); and similarly where resolution B (Increase) was not carried the votes in favour of it were to be added to those for resolution A (Continuance). For the purpose of the poll the State was divided into Licensing Districts which to all intents and purposes, with a few exceptions, coincided with the equivalent Electoral Districts, the Assembly Electoral Rolls being utilized.

In no district was No Licence carried with a sufficient majority and in no district was Increase passed. The final result, after adding the votes for Increase and No License to the votes for Continuance and Reduction respectively as shewn above, was that 10 districts voted for Reduction and 32 for Continuance. The results where Continuance was carried are negative, no action being required. Where Reduction was carried the licenses in existence continue till the end of the current year, and during that period the Licensing Courts must reduce the number of licenses according to the rates set out in the Licensing Act. This provides that there must be a reduction of one license, and there

may, in the discretion of the Court, be a reduction of a quarter of the number in the district. The Act further provides that if the number of licenses in the districts exceeds 12 the number must be reduced by at least 2; and if the number exceeds 24, but is less than 36, by at least 3; and if the number is 36 or over by at least 4. This provision, however, does not affect the general discretion given to the Bench to reduce to three-fourths.

The licenses to which local option applied are Publicans' General Licenses, Hotel Licenses, Wayside House Licenses, Australian Wine and Beer Licenses, and Australian Wine Licenses; and in dealing with the question of reduction the word "license" is used in a collective sense, and it is in the discretion of the Bench whether the reduced license will be a Publican's General License or any of the others mentioned above. In coming to its determination the Bench has to classify the licenses, considering in the first place the convenience of the public and the requirements of the district, and then taking into consideration the number of offences against the licensing laws of which licensees have been guilty and the general conduct of their houses. The result of the poll (the first full poll) was:—

RESULT OF LOCAL OPTION POLL, 30th APRIL, 1921.

Continuance. A.	Increase. B.	Reduction. C.	Prohibition. D.	Do you vote that all new Publicans' General Licenses be held by the State?		Are you in favour of State Management throughout all Licensing Districts?	
				Yes.	No.	Yes.	No.
37,710	2,165	5,940	32,302	30,154	24,377	28,915	24,938
39,875		38,242					

7. **Tasmania.**—In this State the subject of local option is dealt with in Part VI. (sections 72 to 84) of the Licensing Act 1902, as subsequently amended by section 8 of the Licensing Act 1908, which later Act, however, did not come into full operation until the first of January, 1917. Other Acts which formerly dealt with the subject, but are now repealed, are the Licensing Acts 1889–1890, the Innkeepers Relief Act 1894, and the Licensing Act Amendment Act 1898. Under the Act of 1902, opposition to the grant of a license may be made (i) by any resident ratepayer, (ii) by petition of ratepayers resident in the neighbourhood, or (iii) by local option poll.

The conditions under which applications may be made to the Licensing Bench, opposing the granting of licenses, are set out in detail in previous issues of the Year Book. (See No. 6, p. 1181.)

(i) *Local Option Poll.* Any number of ratepayers not less than seven, resident in the neighbourhood of the house in respect of which a certificate for a hotel license has been applied for, may require, by petition lodged with the Clerk of Petty Sessions, that a poll of the ratepayers resident in the neighbourhood be taken upon the question whether such certificate be granted or not. If a majority of the votes taken be against the granting of the certificate the Licensing Bench must refuse to grant it.

An application refused is not to be renewed within three years.

(ii) *Early Closing of Licensed Premises.* A referendum on the question of the closing time for the sale and supply of liquor on licensed premises (6 Geo. V., No. 63) was taken on the 25th March, 1916, when 42,713 votes were cast in favour of closing at six o'clock p.m., against 26,153 votes in favour of ten o'clock, and 3,951 votes for other hours. The majority in favour of closing at six o'clock over all other hours was 12,609, and the Licensing Act (No. 2) of 1916 gives effect to the wishes of the electors.

§ 8. Preferential Voting.

In previous issues of the Year Book, a description in detail has been given of the systems of preferential voting now in force in the States of Victoria, Queensland, Western Australia, and Tasmania. It is not intended to repeat the description in the present issue. It is interesting to note that the system of preferential voting was introduced into elections for the Federal House of Representatives by Act No. 27 of 1918, which amended the previous electoral law. Section 124, sub-section (a) reads as follows :—

> " Where his (the voter's) ballot-paper is a ballot-paper in accordance with Form F in the Schedule—he shall place the number 1 in the square opposite the name of the candidate for whom he votes as his first preference, and shall give contingent votes for all the remaining candidates by placing the numbers 2, 3, 4 (and so on, as the case requires) in the squares opposite their names so as to indicate the order of his preference for them."

This regulation rectifies one of the serious anomalies of the old system of voting.

§ 9. Valuation of Commonwealth Production.

1. *Value of Production.*—The want of uniformity in methods of compilation and presentation of Australian statistics renders it an extremely difficult task to make anything like a satisfactory valuation of the various elements of production. At present there is so little accurate statistical knowledge regarding such industries as forestry, fisheries, poultry, and bee-farming, that any valuation of the production therefrom can only be regarded as the roughest approximation. As a matter of fact, complete information as to value of production in all States is available in regard to the mining industry alone, and even in this case adjustments have to be made before the returns are strictly comparable. Careful estimates have been made in connexion with the value of production from the agricultural and pastoral industries, which, it is believed, in the main give fairly accurate results. In the case of manufactories, prior to 1909, five of the States collected statistics of the value of production, while for the sixth State, Tasmania, an estimate has been prepared which it is believed gives a fair approximation. The returns given in the following table are fuller and more approximate than those which have been given previously, and the figures furnished for 1909 and subsequent years may be taken as substantially correct. The table hereunder shews the approximate value of the production from all industries during the years 1909 to 1919–20 :—

ESTIMATED VALUE OF PRODUCTION FROM INDUSTRIES, 1909 TO 1919–20.

Year.	Agriculture.	Pastoral.	Dairy, Poultry, and Bee-farming.	Forestry and Fisheries.	Mining.	Manufacturing.(a)	Total.
	£1,000.	£1,000.	£1,000.	£1,000.	£1,000.	£1,000.	£1,000.
1909 ..	41,056	50,864	15,064	4,462	23,036	39,713	174,195
1910 ..	39,752	56,993	17,387	4,789	23,222	45,598	187,741
1911 ..	38,774	50,725	19,107	5,728	23,494	50,767	188,595
1912 ..	45,754	51,615	20,280	6,432	25,645	57,022	206,748
1913 ..	46,162	57,866	20,341	6,338	25,810	61,586	218,103
1914 ..	36,052	60,265	21,562	6,419	22,275	62,922	209,495
1915 ..	73,769	65,607	21,156	5,777	22,428	62,883	251,620
1916 ..	60,207	69,939	26,949	5,505	23,606	64,205	270,411
1917 ..	57,967	93,435	31,326	5,523	25,581	69,797	283,629
1918 ..	58,080	98,297	33,738	7,137	26,156	75,261	298,669
1919–20 ..	72,294	109,062	38,830	10,170	19,725	98,162	348,183

(a) These amounts differ from those given in Section XIII., Manufacturing Industries, owing to certain products which are there included having been included in Dairy Farming and Forestry in this table.

2. *Relative Productive Activity.*—The relative output or production per head of population measured quantitatively cannot be gauged from a mere statement of the total value of production from year to year. If measured by mere value, increase of price would have the effect of making an equal production with that of a time when prices were lower, and shew an increase which would, of course, be misleading. For example, the annual figures shewing the estimated value of production from the Commonwealth industries do not directly shew whether there has been any increase in the *quantity* produced, since the price-level at the time is itself a factor in the determination of the values. Before, therefore, any estimate of the relative increase or decrease in production (that is, in the relative quantity of output) can be formed, the variations due to the price element must be eliminated. This is done in the following table, in which Column I. shews the estimated *value* of production (*a*) in the aggregate and (*b*) per head of mean population. In Column II. the estimated value of production per head of population is shewn in the form of index-numbers with the year 1911 as base; that is to say, the production per head in 1911 is made equal to 1000, and the values for the other years computed accordingly. In Column III. Wholesale and Production price index-numbers are given; it is assumed that these index-numbers reflect, with substantial accuracy, variations in Wholesale and Production prices in the Commonwealth as a whole. The figures in Column IV. are obtained by dividing the figures for each year in Column II. by the corresponding figures in Column III. They shew the estimated relative productive activity per head of population, taking the year 1911 as the basic or standard year, the fluctuations due to variation in prices having been eliminated.

ESTIMATED RELATIVE PRODUCTIVE ACTIVITY IN COMMONWEALTH FOR THE YEARS SPECIFIED, 1871 TO 1919-20.

Year.	I. Estimated Value of Production.		II. Relative Value of Production per Head (Year 1911 = 1,000).	III.		IV. Estimated Relative Productive Activity Index-Numbers (Year 1911 = 1,000).	
	(a) Total. (000 omitted)	(b) Per Head of Population.		(a) Wholesale Price Index-Number (Year 1911 = 1,000).	(b) Production Price Index-Number (Year 1911 = 1,000).	(a)	(b)
	£	£					
1871 ..	46,700	27.46	665	1,229	..	541	..
1881 ..	71,116	30.83	747	1,121	..	666	..
1891 ..	96,087	29.65	718	945	..	760	..
1901 ..	114,585	29.96	726	974	..	745	..
1906 ..	147,043	35.94	871	948	..	919	..
1907 ..	166,042	39.90	967	1,021	..	947	..
1908 ..	164,934	38.97	944	1,115	1,070	847	882
1909 ..	174,195	40.29	976	993	995	983	981
1910 ..	187,741	42.43	1,028	1,000	973	1,028	1,057
1911 ..	188,595	41.28	1,000	1,000	1,000	1,000	1,000
1912 ..	206,748	43.68	1,058	1,170	1,101	904	961
1913 ..	218,103	44.77	1,085	1,088	1,050	997	1,033
1914 ..	209,495	42.40	1,027	1,149	1,266	894	811
1915 ..	251,620	51.02	1,236	1,604	1,426	771	867
1916 ..	270,411	55.47	1,344	1,504	1,498	894	897
1917 ..	283,629	57.47	1,392	1,662	1,604	838	868
1918 ..	298,669	59.37	1,438	1,934	1,763	744	816
1919–20 ..	348,183	66.36	1,608	2,312	2,110	696	762

(*a*) Relative Production computed by application of Wholesale Price Index-numbers. (*b*) Index-numbers computed by application of Production Price Index-numbers.

The total production from all industries during 1919–20 was £348,183,000, equal to an average of £66.36 per inhabitant.

In Year Book No. 5 (page 1217) will be found the value of production in each State at decennial intervals since 1871, and for the year 1909. Details for individual States are not available for subsequent years owing to discontinuance by the Customs Department of the collection of statistics of interstate trade.

§ 10. Norfolk Island.

1. **Area, Location, etc.**—Norfolk Island, discovered by Captain Cook in 1774, is situated in latitude 29° 3′ 45″ south, longitude 167° 58′ 6″ east. Its total area is 8,528 acres, the island being about 5 miles long and 3 miles wide. From Sydney it is distant 930 miles, and from New Zealand 400 miles. The coast line is 20 miles, and its form that of an irregular ellipse. Except on the south-west, inaccessible cliffs rise from the water's edge. The climate is equable, the temperature ranging between 56° and 82° with a mean of 68°. The average annual rainfall is 55 inches. It has been said that the salubrious climate coupled with the beauty of its land and sea scapes should combine to render Norfolk Island "the Madeira of the Pacific."

2. **Settlement.**—The first colonisation, in 1788, was by Lieutenant King, who in H.M.S. *Sirius* established a small penal station as a branch settlement of that at Port Jackson. The settlement was abandoned in 1806, and thence for 20 years its chief use was as a whaling station and place of call for British warships.

From 1826 to 1855 it was again made a penal station. In 1844 it was annexed to Van Diemen's Land (Tasmania).

The descendants of the *Bounty* mutineers, having become too numerous to subsist on Pitcairn Island, were removed thence to Norfolk Island in 1856. The new community numbered 193—94 males and 99 females—and were the descendants of British sailors and Tahitian women.

In 1856 the island was severed from Tasmania, and created a distinct and separate settlement under the jurisdiction of New South Wales. In 1897 it was made a dependency under the Governor of that Colony, and was administered by the Chief Secretary's Department through a resident Chief Magistrate, in whom was vested the executive government of the settlement, and the penal supervision of its affairs. In 1913, however, a Bill was passed by the Federal Parliament providing for the taking over of the island as a territory of the Commonwealth. The Act came into force on 1st July, 1914, and the island is now administered by the Department of Home and Territories, Melbourne, through an Administrator and Chief Magistrate.

3. **Population and Live Stock.**—The population on 31st December, 1919, was 340 males, and 391 females, a total of 740. Births in 1919 numbered 15, and deaths 9. The latest returns of live stock shew that there are on the island 1,979 cattle, 699 horses, 548 sheep, and 198 pigs. In addition there are about 6,000 head of poultry. At the Census (4th April, 1921) the population was 717—339 males and 378 females.

4. **Production, Trade, etc.**—The soil throughout is rich, and is specially suitable for the cultivation of citrus fruits, bananas, and (in parts) coffee. Various other sub-tropical fruits thrive. During 1918–19 the production of oranges was given as 24,335 bushels; lemons, 220,970 bushels; bananas, 222,800 dozen. About 52,000 bushels of guavas, 839 dozen pineapples, and 6,840 bushels of passion fruit were also raised, as well as 44,764 lbs. of coffee. Local production of butter was estimated at 16,000 lbs. Similar information for 1919–20 is not available, except for butter, the yield of which was returned at 12,840 lbs. The island is visited annually by schools of whales, both of the sperm and hump-backed variety, and whaling was at one time an important industry, but in recent years it has been allowed to languish. Preparations were, however, in progress for a revival of the industry, but were dislocated by lack of shipping. Edible fish in large variety are found in abundance in the ocean waters in the vicinity of the island. In 1919–20 the imports

were valued at £16,932. The exports were valued at £13,727, the chief items being lemon peel, £4,582; lemon juice, £3,290; and hides, £755. Small quantities of fruit and fruit pulp, passion fruit juice, seeds, fish, whale oil, wool, and timber were also exported. Nearly all the export trade was with the Commonwealth, only small amounts going to New Zealand and the South Sea Islands. Under ordinary circumstances a monthly steam service was maintained with Sydney, but in 1919–20 the arrivals from Sydney consisted of six steamers and one schooner, while three steamers arrived from New Zealand, and two from Fiji. Communication was afforded with New Zealand twice a year by the Melanesian Missionary Yacht "Southern Cross," but the Mission has practically completed arrangements for the transfer of its headquarters from Norfolk Island to some island nearer the centre of its field of operations. The "all red" cable from Great Britain via Vancouver, Fanning Island and Fiji bifurcates at Norfolk Island, one line connecting with New Zealand, the other with Brisbane.

5. *Social Condition.*—Education is free and compulsory up to the age of fifteen years. The school is under the N.S.W. Department of Public Instruction, with standards corresponding to the State public schools, but the salaries and allowances of the teachers are paid by the Norfolk Island Administration. The number of scholars enrolled on the 30th June, 1920, was 136 (68 boys and 68 girls).

The magistrate's court has criminal jurisdiction in all crimes except capital offences, civil jurisdiction in all matters, and authority to grant probate and letters of administration.

§ 11. Lord Howe Island.

1. **Area, Location, etc.**—Between Norfolk Island and the Australian coast is Lord Howe Island in latitude 31° 30′ south, longitude 159° 5′ east. It was discovered in 1788. The total area is 3,220 acres, the island being seven miles in length and from one-half to one and three-quarter miles in width. It is distant 436 miles from Sydney, and in communication therewith by monthly steam service. The flora is varied and the vegetation luxuriant, with shady forests, principally of palms and banyans. The highest point is Mount Gower, 2,840 feet. The climate is mild and the rainfall abundant, but on account of the rocky formation only about a tenth of the surface is suitable for cultivation.

2. **Settlement.**—The first settlement was by a small Maori party in 1853; afterwards a colony was settled from Sydney. Constitutionally, it is a dependency of New South Wales, and is included in the electorate of Sydney. A Board of Control manages the affairs of the island and supervises the palm seed industry referred to hereunder.

3. **Population.**—The population at the Census of 3rd April, 1921, was 65 males, 46 females—total 111.

4. **Production, Trade, etc.**—The principal product is the seed of the native or Kentia palm. The lands belong to the Crown. The occupants pay no rent, and are tenants on sufferance.

§ 12. Nauru (Pleasant Island).

1. **History.**—Nauru, which is situated in latitude 166° east and is only 26 miles south of the equator, was, prior to 1914, part of the protectorate of German New Guinea (see § 1 of the article on the Territory of New Guinea).

In November, 1914, Nauru was occupied by a detachment from the Australian Expedition at Rabaul; and it was included in the cession of colonies made by Germany in 1919 to the Allied and Associated Powers, whose representatives agreed that a mandate over it should be given to His Majesty the King. On 2nd July, 1919, the British, Commonwealth, and New Zealand Governments agreed that the administration of the island (which, since 1915, had been in charge of an official appointed by the British Colonial Office) should be vested in an Administrator; the first Administrator was to be appointed for a term of five years by the Australian Government, and thereafter the Administrator was to be appointed in such manner as the three Governments decided. This Agreement was approved by the Commonwealth Parliament in the Nauru Island Agreement Act 1919, to which it is a schedule.

The first Administrator appointed by the Commonwealth Government assumed duty in June, 1921.

The Mandate for Nauru, which was issued by the Council of the League of Nations in December, 1920, is in terms similar to that for the Territory of New Guinea (see sub-section 7 of the section devoted to that Territory).

2. **Administration.**—The Administrator has all the powers of government,—administrative, legislative, and judicial,—in the island. All expenses of administration are met from local revenue and from the proceeds of the sale of phosphates.

3. **Description.**—Nauru has an area of 12 square miles, and six-sevenths of this is phosphate bearing. The climate is healthy, and malaria is unknown. The natives number about 1,200.

4. **Phosphate Deposits.**—These were discovered in 1900, and were worked by the Pacific Phosphate Company, which also worked the deposits on Ocean Island (about 165 miles east of Nauru and part of the Gilbert and Ellice Islands Colony, administered by the Colonial Office). The quality of the phosphates on these islands is very high, and the quantity on the two islands has been estimated at not less than 100,000,000 tons. About 3,750,000 tons have already been removed.

The interests of the Pacific Phosphate Company in the two islands (though not in other islands in the Pacific in which it has workings) were bought by the British, Commonwealth, and New Zealand Governments in 1919 for £3,500,000, the purchase money being contributed in the proportions of 42, 42, and 16 per cent. respectively. The Agreement of 2nd July, 1919, provides for the working of the deposits by a Board of Commissioners, of three members, one appointed by each Government; and the three countries are to receive the output in the same proportions of 42, 42, and 16 per cent.

The output from the two islands in 1913, the last year before the war, was 350,000 tons; in 1920–21 it amounted to about 400,000 tons; and the Commissioners hope to increase it to 500,000 tons. In 1920–21, owing to Great Britain not requiring her full share, about 200,000 tons were exported to Australia.

The employees of the Commission at Nauru consist of 60 Europeans, 554 Chinese, 200 natives from the Caroline Islands, and 40 natives from the Territory of New Guinea.

§ 13. Interstate Conferences.

1. **General.**—Reference to Inter-State Conferences held in 1914, 1915, 1916, and 1916–17, will be found in earlier issues of Official Year Book (See No. 8, page 1081; No. 11, pages 1191–3; No. 12, pages 1194–5). Considerations of space preclude repetition in present issue.

2. **Premiers' Conference, Sydney, 1918.**—On 8th May, 1918, and following days, a Conference of Premiers was held at Sydney. The substance of the more important resolutions is given below:—

(i) *Uniform Company Law.* That it is desirable that an amended company law be introduced in each State as far as possible upon uniform lines.

(ii) *Adoption of Uniform Food Standards.* That the New South Wales Government be requested to draft a model Pure Food Act and submit it to the other States for their consideration.

(iii) *Uniform Secret Commissions Act.* That it is desirable that uniform Secret Commissions laws should be passed by the States.

(iv) *Guarantee to Wheat Growers for 1918–19 and 1919–20.* That, subject to the Governments of the Commonwealth and of the States retaining control of the wheat scheme and of responsibility therefor, this Conference recommends that the wheat-growers of 1918–19 and 1919–20 be guaranteed 4s. 4d. per bushel, less freight from point of delivery, except in the case of New South Wales, where the arrangements already announced should be adopted; that the manner and the amounts of payment for wheat delivered and the allocation of responsibility between Commonwealth and States shall be the subject of early negotiations.

(v) *Definition of Industrial Matters.* That this Conference affirms the desirability of defining the industrial matters which should with advantage be referred to the exclusive jurisdiction of the Federal Arbitration Court, and those that should be regarded as within the exclusive jurisdiction of the State Industrial Courts.

§ 14. Interstate Commission.

Particulars regarding the Inter-State Commission will be found in Official Year Book No. 13, p. 1123. The term of office (seven years) of the original commissioners expired in 1920, and no new appointments have since been made.

§ 15. Commonwealth Institute of Science and Industry.

1. **General.**—An account of the origin of this Institute was given in Official Year Book No. 9, p. 1135, while the progress of its activities was outlined in succeeding issues.

Under the Institute of Science and Industry Act 1920, assented to on the 14th September, 1920, provision is made for the establishment of the Institute on a permanent basis. By that Act it is declared that there shall be a Commonwealth Institute of Science and Industry, which will be a body corporate. The Act provides for the creation of (*a*) A Bureau of Agriculture, (*b*) A Bureau of Industries, and (*c*) such other Bureaux as the Governor-General determines. Power is given for the establishment of a General Advisory Council and Advisory Boards in each State to advise the Director with regard to—

(*a*) The general business of the Institute or any Bureau thereof, and

(*b*) Any particular matter of investigation or research.

The Director of the Institute is to be appointed for a period of five years. He is to be eligible for reappointment, and shall receive such salary as the Governor-General determines. The Act specifically imposes upon the Director the duty of co-operating as far

as possible with existing State organizations in the co-ordination of scientific investigations The statutory powers and functions of the Director are as follows :—

(a) the initiation and carrying out of scientific researches in connexion with, or for the promotion of, primary or secondary industries in the Commonwealth ;
(b) the establishment and awarding of industrial research studentships and fellowships ;
(c) the making of grants in aid of pure scientific research ;
(d) the recognition or establishment of associations of persons engaged in any industry or industries for the purpose of carrying out industrial scientific research and the co-operation with and the making of grants to such associations when recognised or established ;
(e) the testing and standardization of scientific apparatus and instruments, and of apparatus, machinery, materials and instruments used in industry ;
(f) the establishment of a Bureau of Information for the collection and dissemination of information relating to scientific and technical matters ; and
(g) the collection and dissemination of information regarding industrial welfare and questions relating to the improvement of industrial conditions.

2. **Work of the Institute.**—The Institute has made investigations into several matters of importance to the Commonwealth, and has issued bulletins and pamphlets shewing the progress made. A list of these publications is given at the end of this section. The more important subjects which have been or are at present under consideration are as follows :—

A.—*Agricultural and Pastoral Industries.*

(i) *Cattle Tick Pest.* (ii) *Worm Nodule Disease.* (iii) *Tuberculosis in Stock.* (iv) *Sheep Blow Fly.* (v) *White Ant Pest.* (vi) *Prickly Pear.* This weed covers in Australia an area of about 23,000,000 acres, and is spreading at the rate of about 1,000,000 acres annually. (vii) *Flax Industry.* The area under flax has been increased from 400 to 2,000 acres. (viii) *Cotton Growing.* Varieties of seed specially suitable for cultivation in Australia are being introduced, and the Government has guaranteed a minimum price for cotton cultivated in Australia. (ix) *Seed Improvement.* (x) *Natural Grasses and Fodder Plants.* (xi) *Viticultural Problems.* (xii) *Castor Beans.* (xiii) *Sorghum.*

B.—*Forest and Vegetable Products.*

(i) *Paper Pulp.* (ii) *Tanning Materials.* (iii) *Zamia Palms.* (iv) *Grass Tree Resin* (v) *Western Australian Sandalwood.* (vi) *Preservation of Timbers.*

C.—*Manufacturing Industries.*

(i) *Leather and Tanning.* (ii) *Pottery.* (iii) *Power Alcohol.* (iv) *Posidonia Fibre.* (v) *Mechanical Cotton Picker.* (vi) *Engineering Standardization.*

D.—*Mining and Metallurgy.*

(i) *Mode of Occurrence of Gold.* (ii) *Ferro-alloys.* (iii) *Alunite.*

E.—*Miscellaneous.*

(i) *Road-making Materials, etc.* (ii) *Weights and Measures.* (iii) *Leather.* (iv) *St. John's Wort.*

In addition to these investigations, a Bureau of Information has been established, with a library of scientific books and journals catalogued and indexed. Information is also furnished to Commonwealth and State Government Departments, institutions and organisations, companies, firms, and private individuals on scientific and technical matters.

8. Publications.—The following is a list of the publications issued to 14th March, 1921, by the Institute :—

1. *Bulletins.*

1. The Cattle Tick in Australia. (Out of print. See No. 13.)
2. Worm Nodules in Cattle. (Out of print.)
3. The Alunite Deposits of Australia and their Utilization. (Out of print.)
4. The Factors Influencing Gold Deposition in the Bendigo Goldfield. Part I. (Out of print.)
5. Wheat-storage Problems (Damaged Grain and Insect Pests).
6. Power Alcohol. Proposals for its Production and Utilization in Australia. (Out of print. See No. 20.)
7. Agricultural Research in Australia. (Out of print. The individual papers contained in this Bulletin can be supplied separately.)
8. The Factors Influencing Gold Deposition in the Bendigo Goldfield. Part II. (Out of print.)
9. The Manufacture and Uses of Ferro-alloys and Alloy Steels. (Out of print.)
10. Substitutes for Tin-plate Containers.
11. Paper-pulp : Possibilities of its Manufacture in Australia. (Out of print.)
12. The Prickly Pear in Australia.
13. The Cattle Tick Pest in Australia.
14. An Investigation of the Marine Fibre of Posidonia Australis.
15. Welfare Work.
16. The Factors Influencing Gold Deposition in the Bendigo Goldfield. Part III.
17. Industrial Co-operation in Australia.
18. A Classification and detailed Description of Some of the Wheats of Australia.
19. Wood Waste.
20. Power Alcohol. (Reprint of No. 6, with Addendum.)
21. White Ant Pest.

2. *Reports.*

1. Reports of Executive Committee from Date of Appointment to 30th June, 1917.
2. Report of Executive Committee 1917–18.
3. Report on Organization and Work of Permanent Institute of Science and Industry.
4. Organization of Scientific Research Institutions in United States of America, by G. Lightfoot. (Out of print.)
5. The Work and Present Position of the Temporary Institute of Science and Industry (June, 1920).

3. *Pamphlets.*

1. Recent Developments in the Organization of National Industrial Research Institutions, by G. Lightfoot.
2. Engineering Standardization, by G. Lightfoot.

4. *Australian Standard Specifications.*

1. Structural Steel.
2. Tramway Rails and Fishplates.

5. "*Science and Industry.*"

(Monthly Journal.)

Vol. I., Nos. 1 to 8.
Vol. II., Nos. 1 to 12.

§ 16. Department of Chemistry, South Australia.*

In South Australia, a Department of Chemistry was formed in 1915. The Department is principally engaged in general routine chemical examinations and analyses in pursuance of various Acts of Parliament and for Government Departments, but the chemical investigation of local products and industries forms an important branch of its work. In this connexion a series of Bulletins is in course of preparation. Up to July, 1918, nine Bulletins have been issued, as indicated below. Although publication of Bulletins had to be suspended for a time, it is hoped to continue the series as soon as possible.

No. 1.—*Paper Making:* An investigation into the prospects of establishing a paper-making industry in South Australia. A number of local materials have been investigated, and special attention is directed to straw as the most valuable available material, owing to the very large supply obtainable at a low price and near to the principal sea-ports. No. 2.—*Potash:* Its economic sources in South Australia. Many local sources have been investigated, and wool scour is indicated as especially worthy of attention. *Lanoline:* A process for obtaining wool fat from locally scoured wool is described. No. 3.—*Cream of Tartar:* An examination of local grape products as sources of cream of tartar. No. 4.—*Marine Fibre:* The fibrous portion of the leaf sheath of the sea plant Posidonia Australis grows abundantly in the shallow waters around the coasts of South Australia, and on other parts of the Australian Coast. This Bulletin has been written to gather together and publish all the available information respecting it. The sum of £220,000 has already been spent in this industry, and a large amount of experimental work has been done in finding methods of collection and purification and market uses. No. 5.—*Boiler Waters:* Foaming and priming of boiler waters have been studied with a view to the suggestion of a remedy for these faults. No. 6.—*Grass Tree:* An investigation of the economic products of the species Xanthorrhœa. The trunk, leaves, and resin were examined. Special attention is drawn to the resin as similar to the high-priced resins, such as dragon's blood, benzoin, etc. It was found that 8 per cent. of para-oxy-benzoic acid was readily obtained from the gum. No. 7.—*Gypsum and Plaster of Paris:* An investigation of the gypsum deposits in South Australia and their uses, with special reference to the manufacture of plaster of paris. No. 8.—*Alcohol as a Source of Power:* This Bulletin discusses the use of alcohol as a motor fuel, details tests carried out under practical conditions, and indicates sources from which alcohol can be obtained. No. 9.—*Bonedust:* Its adulteration with Phosphate Rock. The results of this particular form of adulteration are dealt with, and a method of detection described.

Work in connexion with the wheat pest problem was carried out by the Department of Chemistry for the Wheat Weevil Committee, of which the Director of the Department was Chairman. An outline of the results achieved by the Committee is set out in Report No. 2 of the State Advisory Council of Science and Industry of South Australia, 1920. It is estimated that at least £1,500,000 worth of wheat valued at 4s. 9d. per bushel was saved as the direct result of this research work.

NOTE.—In previous editions of the Year Book various other matters of special importance have been dealt with in this section. For a list of these, see Index to Special Articles on page vii.

* Information supplied by the Director, Dr. W. A. Hargreaves, D.Sc., M.A., F.I.C.

§ 17. Animal and Vegetable Diseases and Pests.

1. **General.**—A *Conspectus of Acts and Regulations* in force in the various States of the Commonwealth, relating to noxious animals and weeds, means of preventing or mitigating their ravages, restriction on introduction from overseas of disease-carrying animals and plants, quarantining and eradication of infected organisms, etc., will be found on the following pages.

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
			A.—
(i) Acts in Force ..	Pastures Protection Act 1912, 1918, 1920. (The provisions with respect to the destruction of noxious animals apply only to districts proclaimed to be rabbit infested) Native Dogs Destruction and Poisoned Baits Act 1901	Vermin Destruction Act 1915	Rabbit Act 1885, 1889, 1913, Marsupial Proof Fencing Act 1898, 1913 Dingo and Marsupial Destruction Act 1918
(ii) Definitions ..	*Marsupial* includes kangaroo, wallaroo, wallaby, or paddymelon *Native Dog* includes any dingo or native dog or dog which has become wild *Noxious Animals* include marsupials and native dogs and any animals which the Governor, on petition from a Board, may declare to be such	*Vermin* includes rabbits, foxes, dingoes and dogs run wild or at large, and any kind of animal or bird declared by the Governor to be vermin *Wild Dog.*—A dingo or any undomesticated dog generally known as a wild dog inhabiting the bush and apparently having no owner and being under no control *Wombats* have been declared to be vermin	*Marsupial*, any wallaby, kangaroo, paddymelon, bandicoot, or kangaroo rat. Under the *Marsupial Proof Fencing Act* dingo is included *Dingo.*—A dingo or halfbred dingo or any undomesticated dog generally known as a wild dog inhabiting the bush, or a fox (*Canis vulpes*)
(iii) Constitution of Districts	The Governor may constitute Pastures Protection Districts, and may divide such districts into two or four subdivisions	There are no provisions for the constitution of districts, but for the purposes of the fencing provisions of the Act, special areas comprising a part or the whole of any shire may be formed	(*a*) The Governor may constitute any part of Queensland a Rabbit District (*Rabbit Act*) (*b*) The Governor must divide the State into districts and constitute each district a Dingo District (*Dingo and Marsupial Destruction Act*)
(iv) Boards ..	There is a Pastures Protection Board, consisting of eight elected Directors, for each district	There are no provisions for Boards, but municipal and shire councils have certain powers with respect to the purchase and sale of wire netting	(*a*) *Central Rabbit Board*, consisting of the Minister and not more than six members appointed by the Governor (*b*) *Rabbit Boards*, consisting of so many elected members as may be prescribed. Inspectors are *ex officio* members (*c*) *Dingo Boards*, consisting of five members, one appointed by the Governor and four elected
(v) Qualifications of Members of Boards	Any person, who is liable to be assessed, whose name is on the roll, and who has paid all rates due by him to the Board	..	*Rabbit Board.*—Any owner, part owner, general manager, or resident manager in the district assessed at not less than 50 head of cattle or 250 sheep *Dingo Board.*—Any resident, owner, or manager of a holding in respect of which the prescribed return of stock has been made of not less than 25 head of cattle or 125 sheep or a proportionate number of each

RELATING TO NOXIOUS ANIMALS.

South Australia.	Western Australia.	Tasmania.
GENERAL.		
Vermin Act 1914, 1916, 1919 Wild Dogs Act 1912, 1914, 1919 Sparrow Destruction Act 1889	Rabbit Act 1902 Vermin Boards Act 1909, 1915 Vermin Act 1918, 1919. (This Act applies only to the south-west portion of the State, west of No. 1 rabbit-proof fence and south of No. 3 rabbit-proof fence) Wild Cattle Nuisance Act 1871, 1878, 1883 Destructive Birds and Animals Act 1893	Rabbits Destruction Act 1889, 1893 Wire Netting Act 1910
Vermin includes rabbits, wild dogs and foxes, and any other animals proclaimed by the Governor to be vermin *Wild Dog* includes a dingo and any cross of the native dog, also a dog run wild *Sparrow.*—The common house sparrow (*Passer domesticus*) only	*Vermin* means rabbits and wild dogs and any other animals declared by the Governor to be vermin (*Vermin Boards Act*) *Vermin* means rabbits, foxes, dingoes, dogs run wild or at large, sparrows, starlings, and any other animals or birds proclaimed by the Governor (*Vermin Act*) *Wild Cattle.*—All horses and horned stock not branded with a registered brand *Destructive Birds and Animals.*—Sparrows and any animal or bird proclaimed by the Governor	. .
(*a*) The Governor may, upon the petition of the holders representing one-half of the ratable property (exclusive of unoccupied Crown lands) constitute such area, if not within a municipality, a Vermin-fenced District (*Vermin Act*) (*b*) Governor may declare the district of a municipal corporation or district council to be a Sparrow District (*Sparrow Act*)	The Governor may constitute any definite part of the State a Vermin District	Every municipal district is deemed to be a Rabbit District
(*a*) *Vermin Boards*, consisting of four members, one of whom is a Government officer and the other three are elected (*b*) The council of every municipality is the Local Authority for carrying out the provisions of the *Sparrow Act*	*Vermin Boards*, consisting of not less than six nor more than twelve elected members as the Governor may determine, unless the district is divided into wards, when the number must not exceed twice the number of wards. When the boundaries of a Road District and Vermin District are conterminous, the Governor may appoint the Road Board to be the Vermin District Board	There are no provisions for the constitution of Boards, but municipal councils must carry out the provisions of the Rabbits Act
Any male ratepayer of a District, and any person who is a resident representative of a ratepayer, if nominated by such ratepayer, when he has reached 18 years of age, and any officer or shareholder in a company which is a ratepayer in the District	Any owner, part owner, or manager of a holding within the District, if such holding is ratable under the Act Under the *Vermin Act*, such ownership or part ownership of a holding is not a qualification where the manager is qualified in respect of such holding	

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
			A.—GENERAL
(vi) Qualifications and Voting Power of Electors	On notification of a District, the Minister prepares a roll of all persons entitled to vote, and such roll is revised from time to time by the Board. Any person who has been assessed or is liable to be assessed for payment of rates under the Act is entitled to a vote	..	*Rabbit Boards.*—Same qualification as for membership. Number of votes allowed for 50 and under 2,000 cattle, one; 250 and under 10,000 sheep, one; 2,000 and under 5,000 cattle, two; 10,000 and under 25,000 sheep, two; 5,000 cattle or 25,000 sheep and upwards, three *Dingo Boards.*—Same qualifications as for membership, one vote allowed to each elector
(vii) Functions of Boards	A Board may (*a*) erect on any land a rabbit-proof fence, deemed to be a barrier fence; (*b*) specify dates for simultaneous destruction of rabbits and the means to be employed therefor; (*c*) pay bonuses for scalps; (*d*) destroy rabbits on public lands when money has been voted for that purpose	..	(*a*) *Central Rabbit Board.*—To advise the Minister upon matters relating to the administration of the Act and with respect to any measures for preventing the incursion and migration of rabbits or for their destruction (*b*) *Rabbit Board.*—A Board may (i) order fences to be erected; (ii) affix wire netting to fences; (iii) erect, alter, or repair fences; (iv) search for and destroy rabbits (*c*) *Dingo Board.*—A Board may make by-laws with respect to the destruction of dingoes and marsupials and employ scalpers
(viii) Funds of Boards	*Pastures Protection Funds.*—All subsidies, fines, penalties, rates, and other moneys received by a Board The Governor may subsidise a Board in respect of public land in its District The Governor may require a Board to pay a sum not exceeding 3 per cent. of its revenue to cover the cost of administering the Act		(*a*) *Central Rabbit Board.*—Endowed from the Consolidated Revenue with not exceeding £10,000 annually (*b*) *Rabbit Boards.*—Funds consist of (*a*) rates, (*b*) endowment not exceeding twice the amount actually raised in a year, (*c*) loans from Government not exceeding five times the rates raised during the preceding year (*c*) *Dingo Funds.*—Assessments, licence fees, and endowment

RELATING TO NOXIOUS ANIMALS—*continued.*

—*continued.*

South Australia.	Western Australia.	Tasmania.
Every ratepayer of the age of 18 years and upwards may vote, provided that he is the owner of not less than one-quarter of a square mile of land within the District. One vote is allowed for every 50 square miles or part thereof up to 200 square miles, and then one vote additional for every additional 200 square miles or part thereof	(*a*) Any person who is an elector under the Roads Act, if his land is ratable under the Act. Voting power— Acreage of holding. No. of votes. Not exceeding 10,000 acres .. .. one Exceeding 10,000, not exceeding 100,000 acres .. .. two Exceeding 100,000 acres .. .. three (*Vermin Boards Act*) (*b*) Any person who on the 13th January is the owner of a holding in the District, if such holding is ratable and his name is on the electoral list. Voting power for pastoral holdings— Not exceeding 10,000 acres .. .. one Exceeding 10,000, not exceeding 100,000 acres .. .. two Exceeding 100,000, not exceeding 500,000 acres .. .. three Exceeding 500,000 acres .. .. four Other holdings.—The same number of votes calculated on the unimproved capital value (*Vermin Act*)	..
A Vermin Board may (*a*) carry out all works and undertakings and do all acts necessary for the suppression of vermin by erecting vermin fencing; (*b*) require water supplies to be fenced in; (*c*) purchase any fence along its boundaries; (*d*) contribute to the cost of fences on its boundaries	(*a*) A Board may (i) erect fences or improve existing fences; (ii) alter, maintain, repair, or renew fences; (iii) affix wire netting to fences; (iv) search for and destroy vermin (*Vermin Boards Act*) (*b*) A Board may (i) erect vermin fences and rabbit-proof fences and improve existing fences; (ii) alter, maintain, repair, or renew fences (*Vermin Act*)	
(*a*) *Vermin Boards.*—Revenue consists of (*a*) rates, (*b*) fines and penalties, (*c*) all other moneys received by a Board, (*d*) loans from Government repayable in 20 annual instalments with interest (*b*) *Wild Dogs Fund* consists of (*a*) rates, (*b*) £1 for £1 subsidies from the Treasury not exceeding £4,000 in one year, and (*c*) advances from General Revenue not exceeding £2,000	*Vermin Boards.*—Funds derived from rates and loans from Government	

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
			A.—GENERAL
(ix) *Rates leviable by Boards, etc.*	*Every owner or occupier* who has 10 head or more of large stock or 100 sheep or more must be assessed and rated Assessment must not exceed 4d. per head of large stock or ½d. per head of sheep Unstocked or partly stocked land must be assessed according to its carrying capacity, *agricultural land being assessed* at one sheep to 3 acres Owners of rabbit-proof fenced holdings only pay half rates	..	(a) *Rabbit Boards* may levy an assessment of not less than 1s. nor more than 5s. on every 20 head of cattle or 100 sheep depastured within the District. The assessment on Crown land must not be on a less number of cattle or sheep for every square mile than the Governor fixes, which may be 10 or less cattle or 50 or less sheep. No assessment is made on an owner of less than 50 cattle or 250 sheep, except on Crown leases, nor on owners of rabbit-proof fenced holdings nor on holdings outside of and to the south or west of the border fence (b) *Dingo Boards.*—Assessment not less than 1s. nor more than 6s. on every owner of 25 head of cattle or 125 sheep or more
(x) Returns to be furnished by owner or occupier	Every owner or occupier liable to be rated and every owner of large stock or sheep must make an annual return to the Board shewing the area of his land and the number of his large stock or sheep	..	Under the *Stock Returns Act*, every owner of stock must furnish annually the Clerk of Petty Sessions of his District with a return of the number and description of stock kept by him. Assessments are based on these returns
(xi) Appointment of Inspectors	The Governor may appoint a Chief Inspector for New South Wales and Inspectors for any one or more districts Each member of a Board is an *ex officio* Inspector District Inspectors are paid out of District Funds	(a) The Governor may appoint, subject to the *Public Service Act*, a Chief Inspector for the Suppression of Vermin (b) The Governor may appoint Inspectors either generally or within a prescribed area	Under the *Rabbit Act*, the Governor may appoint Inspectors. Every Inspector is *ex officio* a member of every Board, except the Central Board, but not more than two may attend at any meeting of a Board
(xii) Powers of Inspectors or authorized persons to enter land, etc.	Any authorized person may enter any land in order to search whether any rabbits or noxious animals are on such land, and to erect or repair barrier fences and gates or to examine and inspect land	Any Inspector may at any time enter upon any land and may search whether vermin are on such land, and, on giving notice previously, may take one dog with him	Any member of the police force, who has reasonable grounds for suspicion, may, under authority of a warrant, enter any premises and seize any skins and cyanide of potassium, and if person possessing them does not account for them he may be fined up to £5, or, in case of cyanide, up to £20
			B.—DESTRUCTION OF
		Any owner or occupier of land within 25 miles of an Inspector's usual place of abode may call on him to visit such land to ascertain whether any vermin are thereon	..

RELATING TO NOXIOUS ANIMALS—*continued.*

South Australia.	Western Australia.	Tasmania.
—*continued.*		
(*a*) *Vermin*.—A Board may levy a rate not exceeding 5s. on each full quarter of a square mile of ratable property, but owners of less are exempt as well as those of holdings enclosed with a vermin-proof fence. A District Council may levy a rate not exceeding 3d. in the £1 for the purpose of destroying vermin, *but land within a rabbit-proof* fence is exempt (*b*) *Wild Dogs*.—A rate may be levied on certain lands, not exceeding 1s. on every square mile, or half the amount of annual rental on land leased from the Crown, whichever is the less. Occupier of less than 3 square miles exempt (*c*) *Sparrows*. — Municipalities and District Councils may levy a rate not exceeding 2d., or, with consent of the ratepayers, 6d. in the £1	A Board may levy a rate on pastoral holdings not exceeding 1s. for every 100 acres, and on other holdings an amount equal to one half of the rate which might be levied on the unimproved capital value by a Road Board Owners of holdings of less than 100 acres and of rabbit-proof holdings exempt	A municipal council may levy a special rate for the destruction of rabbits
..		Occupiers of land in an infested district must furnish, every six months, a return shewing the methods adopted and the number of persons engaged in destroying rabbits
(*a*) The Commissioner of Crown Lands may appoint Inspectors, Sub-inspectors, and officers, and a Board may appoint Inspectors, Rangers, and other officers (*Vermin Act*) (*b*) A Local Authority may appoint Inspectors and officers within its district (*Sparrow Act*)	(*a*) The Governor may appoint a Chief Inspector, Inspectors, and other officers (*Rabbit and Vermin Boards* and *Vermin Acts*). (*b*) A Board may appoint Inspectors, and any member thereof may be appointed an Inspector without remuneration (*Vermin Act*)	(*a*) The Governor may appoint a Chief Inspector and Inspectors and officers (*b*) A municipal council must appoint Inspectors, but no member of a council may continue to be an Inspector under such council
(*a*) Any authorized person may enter upon any land or any Crown lands at any time and search to ascertain whether any vermin* are to be found upon such land (*Vermin Act*) (*b*) Any Inspector, after 48 hours' notice, may enter between 7 a.m. and 6 p.m. upon any land or building to ascertain if sparrows or sparrows' eggs or nests are thereon (*Sparrow Act*)	Any Inspector or authorized persons may enter any land or holding to search whether any rabbits or vermin are thereon or to patrol and inspect any fence	An Inspector or person authorized by the Chief Inspector may at all reasonable hours enter upon any Crown land and upon the lands of any person in an infested district for the purpose of seeing whether there are rabbits upon such land

NOXIOUS ANIMALS.

South Australia.	Western Australia.	Tasmania.
..	(*a*) Occupier on finding rabbits upon his land must forthwith notify the nearest Inspector, under a penalty not exceeding £10 for the first offence and not exceeding £50 for subsequent offences (*Rabbit Act*) (*b*) Occupier, upon whose holding there are vermin or signs of vermin, must forthwith give notice to the nearest Inspector or to the Secretary of the local Vermin Board or to the Minister under a penalty not exceeding £20 (*Vermin Act*)	..

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

B.—DESTRUCTION OF NOXIOUS

Particulars.	New South Wales.	Victoria.	Queensland.
(ii) Proclamation of Infested Areas	The Governor may proclaim any Pastures Protection District to be rabbit infested When any District within the Western Division is proclaimed to be rabbit infested, the provisions of the Western Lands Acts relating to rabbits are suspended	..	The Governor may, under the *Marsupial Proof Fencing Act*, constitute any part of Queensland which is grievously infested with marsupials an infested area
(iii) Destruction of Noxious Animals by Owners or Occupiers of land	(*a*) The owner or occupier of land must suppress and destroy all rabbits and noxious animals upon his land and upon any roads bounding or intersecting the same, unless such roads are vested in a municipality or shire (*b*) A Board may give an owner or occupier notice to destroy all rabbits and noxious animals upon his land (*c*) A Local Authority under the *Local Government Act* may cause owners and occupiers to destroy noxious animals	(*a*) Every occupier or owner of land must suppress and destroy all vermin on his land and on the half width of all roads adjoining (*b*) An Inspector on finding vermin may notify the owner or occupier to destroy all vermin upon his land and upon the half width of adjoining roads and keep them clear of vermin	The Minister may require the owner of a rabbit-proof fenced holding to forthwith take effective measures for the destruction of rabbits upon his holding
(iv) Penalty on Owner or Occupier for failing to destroy Noxious Animals	(*a*) Owner or occupier failing to fully and continuously destroy rabbits and noxious animals on his land, first conviction not exceeding £10, second not exceeding £25, and subsequent convictions not exceeding £100 (*Pastures Protection Act*) (*b*) Owner neglecting to destroy rabbits or noxious animals within 28 days of notice, not exceeding £50 (*Local Government Act*)	Owner or occupier failing within 14 days of service of notice to take means to destroy vermin, first offence not exceeding £10, subsequent offences, not exceeding £50	Owner failing within 30 days of notice to comply with the requirements thereof, not less than £10 nor more than £100
(v) Procedure when Owner or Occupier fails to destroy Noxious Animals	(*a*) The owner or occupier is summoned before a Board, and, unless his explanation is satisfactory, any person authorized by the Board may enter his land and take measures to destroy noxious animals at the expense of such owner or occupier (*Pastures Protection Act*) (*b*) A municipal council may cause noxious animals to be destroyed at the expense of the owner or occupier of the land (*Local Government Act*)	If after 14 days' notice the owner or occupier has not complied with the notice, in addition to any other proceedings, any Inspector may enter upon his land and remain thereon in order to take or destroy or suppress vermin at the expense of such owner	If an owner fails within 30 days to comply with a notice the Minister may authorise any person to enter upon his holding and take measures to destroy the rabbits thereon at the owner's expense

RELATING TO NOXIOUS ANIMALS—*continued.*

ANIMALS—*continued.*

South Australia.	Western Australia.	Tasmania.
A District Council may declare any Crown lands within its District, but which are not within a Vermin-fenced District, to be vermin-infested	The Governor may proclaim that any area is vermin-infested, in order that all water supplies therein may be enclosed with rabbit-proof fencing	The Governor must, upon the report of the Chief Inspector, declare any district to be an infested district or a clear district
(*a*) Every owner and occupier of land must destroy all vermin upon such land and upon the half width of all adjoining roads (*b*) Where an authorized person finds vermin upon any land he may require the owner or occupier to forthwith destroy all vermin thereon and upon the half width of roads adjoining same	(*a*) The owner or occupier of any land must suppress and destroy all rabbits upon such land and upon any roads bounding or intersecting same. An Inspector may give notice to an owner or occupier to suppress and destroy rabbits (*Rabbit Act*) (*b*) A Vermin Board may notify an owner of a holding to forthwith take effective steps for the destruction of vermin thereon (*Vermin Boards Act*) (*c*) The owner and occupier of a holding must destroy all vermin upon such holding and upon any roads bounding or intersecting same. The Minister or a Board may notify the owner or occupier of any holding to destroy vermin thereon (*Vermin Act*)	An Inspector may serve upon the occupier of any land in an infested district notice requiring him forthwith to destroy the rabbits upon such land
Owner or occupier not destroying all vermin within the time prescribed, or during the simultaneous vermin destruction months, first offence not exceeding £5, subsequent offences not exceeding £20	(*a*) Owner or occupier failing to fully and continuously destroy rabbits, first conviction, not exceeding £10, subsequent convictions, not exceeding £50 (*Rabbit Act*) (*b*) Owner or occupier not destroying vermin, not exceeding £10 (*Vermin Act*) (*c*) Owner or occupier not commencing to destroy vermin within 7 days of notice, not exceeding £50 (*Vermin Act*)	Occupier not commencing within 7 days after service of notice to destroy rabbits, not less than £2 nor more than £25
When an owner or occupier does not forthwith commence to comply with a notice to destroy vermin and continue to comply therewith, any authorized person may enter upon his land and take measures to destroy vermin at their expense	(*a*) An owner or occupier failing to comply with a notice is summoned before the Minister, who may authorize any person to enter upon the land and destroy rabbits, the cost thereof, with 5 per cent. interest, to be paid by owner, etc. (*Rabbit Act*) (*b*) If owner fails within 30 days to comply with notice, a Board may authorize any person to enter upon his holding and destroy vermin at his expense (*Vermin Boards Act*) (*c*) If owner fails to comply with notice, any Inspector may enter upon his land and destroy vermin at his expense (*Vermin Act*)	If an occupier fails for 7 days to comply with a notice to destroy rabbits, an Inspector makes a complaint, and two Justices in Petty Sessions may authorize him to enter upon the land and destroy rabbits at the occupier's expense

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

B.—DESTRUCTION OF NOXIOUS

Particulars.	New South Wales.	Victoria.	Queensland.
(vi) Recovery of cost of destruction by Tenant from Landlord	..	Any occupier who, while occupying any land under any agreement with a landlord, has incurred expense in destroying vermin may, unless otherwise provided by such agreement, recover from such landlord one-half the amount of such expense if such agreement terminates within 12 but not within 6 months, and two-thirds if it terminates within 6 months	..
(vii) Destruction of Noxious Animals on Crown Lands	Where money has been voted by Parliament for the destruction of rabbits on public lands, the Minister may authorize a Board to apply such money on such terms and conditions as he may think fit	In the event of the owner or occupier of land being the Board of Land and Works, any owner or occupier of land within 1 mile thereof may require the said Board to forthwith destroy all vermin upon its land and half width of road and keep them clear, and if the Board fails to do so within 14 days it may be fined up to £10 for first offence, and to £50 for subsequent offence, such fines to be paid to the shire in which the land is situated	
(viii) Destruction of Noxious Animals by Local Authorities, etc.	(a) The Council of a Municipality or Shire is deemed to be the occupier of all land vested in or held by them, and trustees of commons are deemed to be the occupiers thereof (*Pastures Protection Act*) (b) A Municipal Council must destroy all noxious animals on land vested in or leased by it (*Local Government Act*)	All lands permanently or temporarily vested in or occupied or managed by any municipality, council, or trustees are deemed to be owned by such bodies Any municipality, council, or trustees, who are owners of land, may apply the funds under their control to defraying any expenses incurred under the *Vermin Destruction Act*	
(ix) Simultaneous Destruction of Noxious Animals	A Board may specify (a) the dates on which owners or occupiers must commence to suppress and destroy rabbits and noxious animals, and (b) the periods during which such work must be continued, and (c) the means to be adopted. One month's notice at least must be given for such destruction	The Governor may proclaim any specified day on which simultaneous destruction of vermin must be commenced and continued in any specified part of Victoria	
(x) Laying Poison ..	(a) When a Board destroys rabbits and noxious animals in default of the occupier so doing, poison must not be used unless previous notice has been given to the occupier (*Pastures Protection Act*) (b) Any occupier of land stocked with sheep, cattle, or horses may lay poisoned baits for native dogs, but a lessee of Crown land may not lay baits within ½ mile of a public road, nor an occupier of freehold land within 100 yards of a road or boundary. Notice must be posted upon a road (*Native Dogs Destruction and Poisoned Baits Act*)	An Inspector who destroys vermin in default of the owner or occupier may lay poison, but must give such owner or occupier 14 days' notice, stating the land upon which such poison is to be laid	It is not lawful to use cyanide of potassium for the destruction of dingoes or marsupials, nor for a scalper to possess such cyanide. Penalty for contravention, not exceeding £20

RELATING TO NOXIOUS ANIMALS—*continued.*

ANIMALS—*continued.*

South Australia.	Western Australia.	Tasmania.
Every occupier of land alienated from the Crown, who pays the cost of the destruction of vermin upon land held by him as lessee or tenant for a term having less than 5 years to run, is entitled to be repaid so much of the cost as would be payable for the difference between a term of 5 years and the time so to run of his lease or tenancy	..	Where a tenant has incurred expense in destroying rabbits, he may recover from the landlord, in case of a lease not exceeding 1 year, four-fifths of such expense; and if the term exceeds 1 but not 3 years, three-fifths; and if it exceeds 3 years two-fifths. A person in occupation of pastoral Crown land may recover one-half of such expense provided that he may not recover a larger sum than 1 year's rent
When any Crown lands, not within a vermin-infested district, have been declared by a District Council to be vermin-infested, an annual rate may be declared not exceeding £1 per square mile, which is to be expended on the destruction of vermin on such Crown lands, otherwise the Crown is under no liability for the destruction of vermin on Crown lands	Where money has been voted by Parliament for the purpose of rabbit destruction, the Minister may apply such money for that purpose as he thinks fit (*Rabbit Act*)	Any Inspector or person authorized by the Chief Inspector may enter upon any Crown land and destroy the rabbits thereon, and all expenses incurred must be defrayed out of the Consolidated Revenue Fund
All Boards, Municipal Corporations, District Councils, and other corporate bodies must, at their own expense, destroy all vermin on the lands vested in them or under their control Two or more contiguous Councils may form an Associated District Councils' Vermin Board	A Road Board may defray out of its ordinary revenue any expenses incurred in the performance of its duties under the *Vermin Act* in respect of land of which it is the owner	Every Municipal Council must take measures to ensure the destruction of all rabbits within the Municipality
Simultaneous destruction of vermin must, within the district of every District Council, Vermin Board, or Associated Board, be proceeded with during January to April in each year or during such other period as fixed by the Commissioner of Crown Lands	The Minister or a Board may specify (*a*) dates on which owners or occupiers must commence destroying vermin, and (*b*) the period during which such destruction is to be continued, and (*c*) the means to be adopted for carrying out such work	..
(*a*) Any Vermin Board or Municipal Corporation or District Council may lay poison on any land within its district or on any adjoining Crown lands (*b*) Any occupier may lay poison on his land (*c*) No poison may be laid within 100 yards of a public road, and notice of laying poison must be exhibited (*d*) The use of poison for the destruction of sparrows may be authorized subject to regulations for the prevention of accident (*Sparrow Act*)	An Inspector who destroys rabbits where the owner or occupier fails to do so must give notice (7 days in *Vermin Boards Act*) to the occupier of his intention to use poison (*Rabbit and Vermin Acts*)	An Inspector who destroys rabbits in default of the occupier must give such occupier 7 days' notice of where poison is to be laid

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

B.—DESTRUCTION OF NOXIOUS

Particulars.	New South Wales.	Victoria.	Queensland.
(xi) Special Provisions for the Destruction of Dingoes, Marsupials and Destructive Animals and Birds	Any occupant of land stocked with sheep, cattle, or horses may tender to the nearest Court of Petty Sessions for drawing trails and laying poisoned baits for the destruction of native dogs. The cost of such destruction is to be distributed proportionately among owners benefited	..	No person may destroy dingoes or marsupials within a Dingo District unless he holds a permit as scalper or is the owner or manager of a holding or is authorized by them No permit is issued in respect of any holding which is fenced with dog-proof fencing Annual fee for permit 2s. 6d.
(xii) Bonuses for the Destruction of Noxious Animals	A Pastures Protection Board may, and, if the Minister directs, must, pay bonuses for the scalps of noxious animals at such rates as the Board may determine	Every municipal council must pay a bonus of 2s. 6d. for every fox and 20s. for every wild dog destroyed within its boundaries, but is not compelled to pay more than £200 in one year for the destruction of wild dogs, and may increase such amounts. The Government refunds one-half the difference between the bonuses paid and the amount received from the sale of skins, but not exceeding 1s. 3d. for foxes and 10s. for wild dogs, and the total for wild dogs must not exceed £500 in one year. One-half bonus only is to be paid for wild dogs under 6 months old. A council may also pay for the destruction of vermin whether killed within or without its boundaries such sum as it deems fit	(a) Any person, without a license, paying a bonus for rabbit scalps is liable to a penalty not exceeding £50 (b) The rates of bonus for the destruction of dingoes (including foxes) are fixed annually by the Dingo Boards, but must be not less than 20s. each The payment of a bonus in the case of marsupials is optional, and of dingoes compulsory Government makes an annual endowment, not exceeding £5,000, paid in proportion to the amount actually expended by each Board on bonuses
(xiii) Protection of Natural Enemies of Noxious Animals	The Governor may proclaim any animal, bird, or reptile to be a natural enemy of the rabbit, and prohibit within any area the killing thereof under a penalty not exceeding £5. The iguana, native cat, tiger cat, ferret, mongoose, and stoat are declared to be natural enemies, and in certain districts domestic cats which have become wild	The Governor may proclaim any animal, bird, or reptile to be a natural enemy of vermin, and prohibit within any proclaimed districts the killing, etc., thereof under a penalty of not less than £1 nor more than £10	The Governor may proclaim any animal to be a natural enemy of the rabbit, and prohibit the killing or capturing thereof in a defined district under a penalty not exceeding £10
(xiv) Penalty for introducing or keeping Noxious Animals	(a) Liberating or attempting to liberate, or possessing any live rabbit, not exceeding £100 (b) Having in one's possession or wilfully liberating any noxious animal, not exceeding £10	Possessing or wilfully setting loose any live vermin, not less than £5 nor more than £50, or imprisonment with or without hard labour for not more than 6 months	(a) Introducing any live rabbit into Queensland a misdemeanour, penalty £100 and in addition imprisonment with or without hard labour up to 2 years (b) Possessing or keeping on one's premises any live rabbit, first offence not less than £10 nor more than £50, second offence not less than £20 nor more than £100

RELATING TO NOXIOUS ANIMALS—*continued.*

ANIMALS—*continued.*

South Australia.	Western Australia.	Tasmania.
An occupier of land, after notice from an Inspector, must within 21 days destroy all sparrows' eggs and prevent sparrows from building nests or increasing thereon. In default an Inspector, after 48 hours' notice, may, not earlier than one hour before sunrise nor later than one hour after sunset, enter such *premises and destroy sparrows* and their eggs at the owner's or occupier's expense	(*a*) Any person may destroy any destructive bird or animal within the State (*b*) Any police officer or constable and any authorized person may enter upon any land, houses, or buildings and destroy any destructive birds or animals found thereon (*c*) Licenses for the destruction *of wild cattle are issued by the* Board for licensing public houses	..
(*a*) The Treasurer must pay out of the Wild Dogs Fund a bonus for the scalp of any wild dog killed on ratable lands or on Crown lands, except in certain scheduled lands, such bonus to be not less than 5s. (*b*) A Local Authority in a Sparrow District may pay bonuses for the destruction of sparrows and sparrows' nests therein	(*a*) Any person, without the license of the Minister, who pays or offers to pay any bonus for the destruction of rabbits is liable to a penalty under the *Rabbit Act* not exceeding £50, and under the *Vermin Act* not exceeding £20 (*b*) A Board may grant bonuses for the destruction of vermin (rabbits excepted under the *Vermin Act*) within its district (*c*) A Vermin Board may pay a bonus not exceeding 10s. each for the scalps of wild dogs and foxes, and under special circumstances may pay bonuses up to £5. When a Board has paid a bonus of 10s. or upwards, the Department of Agriculture may refund 5s. when outside and 10s. when inside the South-Western Division	
	The Governor may declare any animal, bird, or reptile to be a natural enemy of the rabbit, and prohibit within any specified area the killing, etc., thereof under a penalty not exceeding £5	The Governor may proclaim any animal to be a natural enemy of the rabbit, and prohibit within certain proclaimed districts the killing of any native cat (*Dasyurus viverrinus*), tiger cat (*Dasyurus maculatus*), domestic cat, or other proclaimed enemy under penalty of not less than £2 nor more than £10
(*a*) Letting loose vermin in any part of the State, not exceeding £100 or 6 months' imprisonment with hard labour (*b*) Importing into or letting loose or keeping alive vermin on Kangaroo Island or other islands on the coast, not exceeding £100 or imprisonment for 6 months with or without hard labour (*c*) Letting loose sparrows in any part of the State, not exceeding £10 or imprisonment for 3 months with or without hard labour	Liberating or possessing any live rabbit, not exceeding £100. Selling any dead rabbit west of No. 1 fence, unless imported or killed west thereof, not exceeding £50 (*Rabbit Act*) Passing live vermin through vermin or rabbit proof fence, not exceeding £100 or 6 months' imprisonment (*Vermin Act*) Importing, possessing, or setting free destructive animals or birds, first offence not exceeding £50, subsequent not exceeding £100	Setting at large or attempting to set at large live rabbits, not less than £5 nor more than £20 for each rabbit

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

C.—VERMIN-PROOF

Particulars.	New South Wales.	Victoria.	Queensland.
(i) Description of Rabbit-proof or Vermin-proof Fence	*Rabbit-proof Fence.*—(*a*) A substantial fence hung with galvanized wire netting at least 36 inches wide, not less than 18 gauge, mesh not wider than 1¼ inches; or (*b*) a fence reasonably sufficient in the opinion of a Board for the purpose of excluding rabbits	The Governor may proclaim any wire netting or other vermin-proof or rabbit-proof fence described therein to be such fence within the meaning of the Act, and every fence erected in the manner so proclaimed, if at least 42 inches in height, is deemed to be a "sufficient fence" within the meaning of the *Fences Act*	*Rabbit-proof,* used with reference to fencing, is defined as of such a character as to prevent the passage of rabbits
(ii) Erection of Fences by Government, Boards, etc.	(*a*) A Board may erect a rabbit-proof fence or barrier fence on any land, public or private, within or without its District, or co-operate with another Board in such work (*b*) Boards must maintain barrier fences (*c*) When a barrier fence is within or on the boundary of Crown lands, any purchaser or lessee thereof (other than an annual lessee) must pay the value of the fence situated within his land	On the application of two or more owners of adjoining properties in a special area who have been furnished with materials for fencing, a Shire Council may, at their cost, erect a rabbit or vermin-proof fence, such owners entering into a bond to repay the cost thereof	(*a*) A Rabbit Board may apply money towards defraying the cost of the erection or maintenance of rabbit-proof fences (*b*) A Rabbit Board may direct that a fence be erected from one place to another within its district, and owners of holdings along the boundaries of which such fence is to be erected must erect fences capable of supporting wire netting and maintain them (*c*) A Rabbit Board may affix wire netting to any fence
(iii) Fencing Crown Lands	Where a private rabbit-proof fence forms a common boundary between public and private lands, the same contribution is payable by the Crown as would be payable by a private owner	The Government may erect and maintain vermin-proof fencing to enclose any Crown lands not owned or occupied otherwise than by the Board of Land and Works, and when such land is sold or leased the purchaser or lessee must repay the Crown the cost thereof	..
(iv) Advances by Government to Boards or Councils	When money is voted by Parliament for the purchase of wire netting and other materials, the Minister may (*a*) purchase and distribute the same among Boards, or (*b*) lend the money to Boards for the purchase by them of such netting, etc. A Board must repay the cost by instalments over a period not exceeding 20 years with interest	(*a*) The Governor may grant loans to Shires for the purchase of wire netting for supplying to owners of land in a special area, repayable within 10 years without interest (*b*) The Government may grant loans, not exceeding £50,000, from Trust Funds at 3% interest (*c*) The Minister may sell wire netting to any municipal council which undertakes to make arrangements with land-owners. Council pays 10% cash, and balance in nine equal annual instalments with 4% interest	..

LATING TO NOXIOUS ANIMALS—*continued.*

South Australia.	Western Australia.	Tasmania.
FENCING.		
Rabbit-proof Fence.—Strainers not less than 5 inches thick, 150 yards apart, 30 inches in ground, 42 inches out. Posts not less than 3 inches thick, 20 feet apart, 18 inches in, 39 inches out of ground. Wire netting not less than 18 gauge, minimum width 36 inches, maximum mesh 1¼ inches, 4 inches in ground. Two plain wires 16 inches and 32 inches above ground, one barbed wire 3 feet above ground. *Vermin Fence.* — Strainers 6 inches thick, 150 yards apart, 33 inches in and 54 inches out of ground. Posts 5 inches thick, 20 feet apart, 24 inches in, 54 inches out of ground. Wire netting 18 gauge, minimum width 42 inches, maximum mesh 1¼ inches, 4 inches in and 38 inches out of ground. Two barbed wires 3½ inches and 13 inches above netting. Two No. 10 plain wires 19 inches and 46 inches above surface	*Rabbit-proof Fence.*—Strainers 6 inches thick, not more than 128 feet apart, 36 inches in ground. Posts not less than 4 inches thick (Jam or mulga 3 inches thick), not more than 18 feet apart, not less than 21 inches in ground. Wire netting at least 42 inches wide, maximum mesh 1¼ inches, minimum gauge 17, sunk 6 inches in ground. Two wires 22 inches and 36 inches above ground. *Vermin Fence.*—Strainers not less than 6 inches thick, 150 yards apart, 3 feet in ground, 54 inches out of ground. Jam or mulga posts, 3 inches, others 4 inches thick, or iron standards not less than 1¼ inches x ¼ inch, not more than 20 feet apart, 24 inches in ground, not less than 54 inches out of ground. Wire netting same as for rabbits. Barbed wires 3½ and 15 inches above netting, with plain wire between. Two plain wires 19 inches and 42 inches above surface	
(*a*) A Vermin Board may do everything necessary for the suppression of vermin by the erection of vermin fencing (*b*) The Government may erect vermin-proof fences, the cost of which is to be borne by the owners or occupiers benefited, payable in 20 equal annual instalments with interest, or by rates (*c*) The dog-proof fence from Morgan to Nackara was erected by Government at the expense of owners on each side, and is maintained by the District Councils of the areas benefited	(*a*) The Minister may, out of moneys voted by Parliament, erect, maintain, and repair fences on any Crown land or private land in order to protect any part of the State from the incursion of rabbits (*b*) A Vermin Board may erect fences for preventing the incursion or migration of vermin	..
The Government may fence any vermin-infested Crown lands with a rabbit-proof fence, upon which they cease to be ratable	The Minister may erect and maintain fences on Crown lands	
A Vermin Board or District Council may borrow from the Government for the purpose of purchasing wire netting and supplying same to occupiers of land in a special area. The loan is to be repaid in 20 equal annual instalments, with interest	..	The Minister may sell wire netting to any municipal council which undertakes to make arrangements with land-owners to buy the same for holdings situated in an infested district. The council pays 10% cash, and the balance in nine equal instalments, with 4½% interest

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
			C.—VERMIN-PROOF
(v) Advances by Boards or Councils to Land-owners or Occupiers	(*a*) An owner of land may purchase from a Board wire netting, etc., the cost of which with interest and all expenses in connexion therewith must be repaid in instalments spread over a period not exceeding that within which the cost is to be paid by the Board (*b*) An occupier of a holding may purchase wire netting, etc., from a Board for cash if the Minister consents	(*a*) In a special area, a Shire Council must furnish or offer to furnish owners of land with netting and notify the amount of value, whereupon such amount (whether the materials are accepted by such owner or not) becomes a debt due by such owner. Repayment to be made in ten equal annual instalments with 8% interest (*b*) A Municipal Council may grant an advance of wire netting, not exceeding 5 lineal miles, to any owner of land, such owner to pay 4½% interest on the amount unpaid	..
(vi) Advances by Government to Land-owners or Occupiers	..	The Minister may advance up to 6 lineal miles of netting to any owner on such terms as to security as may be arranged (*a*) if such land is held under a license or conditional purchase lease as an agricultural or grazing allotment or under a lease as a selection purchase allotment, or (*b*) if such land is licensed under the *Land Act*, or (*c*) if such land immediately adjoins any unoccupied Crown land or is not included in a municipality Where a fence is on a boundary between private and unoccupied Crown land, only one-half of the value need be paid A mortgage or lien over the land must be given	(*a*) The owner of a holding in a Rabbit District or infested Dingo District may apply for wire netting to the Minister, who may provide same. The cost thereof is to be a charge on the estate or interest in the holding, and be repaid by equal annual instalments in 10, 15, 20, or 25 years, as agreed on, with interest at 4% for rabbit proof and 5% for marsupial proof fencing (*b*) An owner may obtain wire netting from the Minister on his own account for marsupial-proof fencing in a proclaimed infested district and the Minister may advance him the cost on the same terms on which he obtained the netting
(vii) Erection of or Contributions to Cost of Fencing by Owner or Occupier	(*a*) The occupier of a holding of Crown land under an occupation license or lease may notify the local Land Board that he intends to make such holding rabbit-proof, and, when the fence is completed, such holding is deemed to be rabbit-proof as far as regards the payment for improvements in connexion with land withdrawn from occupation license or lease by becoming the subject of any purchase or lease from the Crown (*b*) The owners or occupiers of adjoining properties must share the cost of rabbit-proof fencing on their boundaries (*c*) The holder of a license or lease from the Crown, having less than 5 years to run, need only pay a rental equal to 5% of the half of the cost of erection of the fence	(*a*) In a special area for which a Shire Council has borrowed money for the purpose of netting, an owner must be given notice to fence by the Shire which furnishes him with netting, and if such owner fails to comply the Council may erect the fence at his expense, and the owner is liable to a penalty not exceeding £20 (*b*) Councils may erect fences in special areas on the request of two or more owners of adjoining properties at their expense (*c*) All land in a special area, unless already sufficiently fenced must be chargeable with the payment of all materials which the Council furnishes or offers to furnish	(*a*) When a Rabbit Board orders a fence to be erected the owner of every holding along the boundaries of which such fence passes must erect and maintain a fence capable of supporting wire netting. The cost is distributed as follows :—(i) Owner of holding within such fence, one-fourth ; (ii) owners of holdings bounded by such fence, one-fourth each ; (iii) owners of holdings benefited, the balance (*b*) The owner of a holding using a fence erected at the expense of a Board or the Crown must maintain such fence and pay 4% per annum upon the cost of the wire netting
(viii) Miscellaneous	The following means are sanctioned for the destruction of rabbits and noxious animals :—Poisoning, trapping, fumigation, destruction of harbour, hunting and shooting, killing the females as caught and letting the males go alive, but only in wire-netted areas	(*a*) Any owner or occupier may burn off, without notice, from May to September (*b*) Any Inspector may notify an owner or occupier to destroy fences or timber which give harbour to vermin	Marsupial-proof fences must be inspected annually by a Land Commissioner or Crown Lands Ranger

RELATING TO NOXIOUS ANIMALS—*continued.*

South Australia.	Western Australia.	Tasmania.
FENCING—continued.		
(*a*) A Vermin Board or District Council may supply occupiers of land in a special area with wire netting, such occupiers to repay in 20 equal annual instalments, with interest at ½% more than the Board or Council pays for the loan (*b*) All land of an occupier in a special area is to be chargeable with the payment of all netting which a Board or Council furnishes or offers to furnish, whether the same is accepted or not	Any owner or occupier may apply to a Vermin Board for wire netting and other appliances for vermin fences; the Board may provide same and defray the cost out of its funds. Applicant to execute a mortgage to the Agricultural Bank and repay the cost in annual instalments over a period not exceeding 20 years, with interest at the prescribed rate (*Vermin Act*)	A Municipal Council may advance wire netting up to 5 lineal miles to any land-owner for fencing his land (not being less than 5 acres in area or leased Crown lands). Owner to repay cost in 10 annual instalments with 4½% interest, and to give the Council a mortgage over his land
(*a*) The cost of barbed wire and netting for vermin-proof fencing a boundary fence may be advanced to the lessee of land outside of District Councils' and Vermin-fenced Districts by the Government. Repayment to be made by 20 equal annual instalments, with interest at a fixed rate (*b*) The Governor may lend money for fencing around agricultural or cultivated lands not situate within any District Council District. All persons interested therein are to form a Trust, and are jointly and severally liable for the repayment thereof in 20 equal annual instalments, with interest	The Minister, on application from any occupier or owner of land, may provide wire netting and defray the cost of delivery at the nearest railway station or port. The owner must mortgage the land and repay the cost with interest at the prescribed rate extending over a period not exceeding 20 years	An advance of wire netting not exceeding 6 lineal miles may be made by the Minister to any owner of land (*a*) if the land is held under lease (other than mining) under any Act relating to Crown lands, or (*b*) if the land immediately adjoins unoccupied Crown lands Repayment to be made in 10 yearly instalments, and such security is to be given as arranged
(*a*) A District Council may notify an occupier in a special area to erect wire netting furnished to him, otherwise it may do so at his expense (*b*) A District Council may, on the application of two or more occupiers of adjoining properties in a special area, erect netting at their expense (*c*) An occupier of land not within but abutting on a District must pay the Board owning the fence *one-half the value thereof* in 20 annual instalments, with interest (*d*) An occupier of land abutting on the vermin fence of a Board must pay 5% per annum on half the cost of such fence (*e*) An occupier of land outside a District Council's or Municipality's district must pay his share of the cost and maintenance of a fence erected by an adjoining owner	(*a*) Where a boundary is fenced with a rabbit-proof fence the owner or occupier of the adjoining holding must contribute to the cost thereof according to the length of time he has a right of occupation on the following scale: 10 years or more, four-fifths; 6 years and less than 10, three-fifths; 4 years and less than 6, two-fifths; 2 years and less than 4, one-fifth; less than 2 years, one-tenth (*b*) Where a fence erected by a Vermin Board *is made use of* by the owner of a holding, such owner must pay annually to the Board a prescribed percentage of the value of the fence to such owner (*c*) Owners in a vermin-infested area must fence in water supplies provided that Government or a Board is prepared to supply wire netting	..
..	No destructive bird or animal may be imported into Western Australia	—

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE RELATING

Particulars.	New South Wales.	Victoria.	Queensland.
(i) Acts in force ..	Prickly Pear Destruction Act 1901 Local Government Act 1919	Thistle Act 1915	Prickly Pear Destruction Act 1912, 1913 Local Authorities Act 1902, 1910, 1912, 1913
(ii) Definitions ..	(*a*) *Prickly Pear.*—Opuntia vulgaris, O. brasiliensis, O. monocantha, O. tuna, O. inermis, O. aurantiaca, O. nigricans, O. imbricata, O. microdasys (*b*) Governor may declare any plant to be a noxious plant (*c*) A Council may declare a plant to be a noxious plant within its area	*Thistle.*—Carduus marianus, Carduus benedictus, Carduus lanceolatus, Onopordum acanthium, Xanthium spinosum (Bathurst burr), Carduus arvensis (Canadian thistle), and any other plant declared by the Governor to be a thistle. Numerous plants have been declared noxious some for the whole State and others for portions thereof	*Noxious Weed or Plant.*—Any weed or plant growing within any Local Authority area which has been declared to be a noxious weed or plant and to be a nuisance under the Local Authorities Act. Prickly-pear and water hyacinth are declared to be noxious weeds
(iii) Inspectors and Persons authorized to give notices	The Minister may authorize any person to act as Inspector	A Justice or municipal officer gives notices	Notices are served by a Local Authority
(iv) Powers of Inspectors, etc.	Any Inspector may at all reasonable hours enter upon any Crown land or private land to ascertain if any prickly pear is growing thereon, and must do so on being required by any owner or occupier	Any person authorized by a Justice or municipal officer may enter upon any lands to ascertain if thistles are growing thereon	A Local Authority may cause the extirpation and destruction of any noxious weed within its area, and may enter upon and dig up the soil of any unoccupied Crown land, public reserve, or private land therein
(v) Noxious Weeds on Unoccupied Crown Lands	(*a*) When prickly pear is found on Crown land, an Inspector must give notice to the Minister, who must forthwith authorize the employment of all necessary labour to eradicate the same, but he may instead offer for lease such land by auction or tender, or let it in areas not exceeding 640 acres for a period not exceeding 21 years conditionally upon the lessee eradicating prickly-pear thereon (*b*) A Municipal Council may destroy noxious weeds on any unoccupied Crown lands or may notify the Crown to do so	Notice to be given to the Board of Land and Works in Melbourne, and such Board may eradicate thistles on unoccupied Crown lands not within the boundaries of any shire or borough	(*a*) The Secretary for Public Lands may make an agreement with any person having for its object the freeing of Crown land heavily infested with prickly-pear, and for the grant or disposal of such land when so freed, the maximum area allowed in one agreement being 100,000 acres (*b*) Land heavily infested with prickly-pear may be leased at a nominal rental for 50 years conditionally on the lessee destroying all prickly pear thereon (*c*) The Treasurer, on notification from a Municipal Council, must extirpate noxious weeds on unoccupied Crown land from moneys appropriated by Parliament
(vi) Noxious Weeds on Land occupied by a Municipality	(*a*) A Municipal Council, on receipt of notice, must forthwith eradicate prickly-pear on its land, streets, and roads (*b*) A Municipal Council must destroy all noxious plants upon land vested in it, on reserves and upon rivers not privately owned (*c*) A Council may require an adjoining Council to destroy noxious weeds for 40 chains from the boundary	A Municipal Council must eradicate thistles on land within its boundaries vested in it, or occupied by it, other than unoccupied Crown lands. Any expenditure in excess of £100 in any one year may be refunded by the Government	A Local Authority must extirpate and destroy any noxious weeds existing upon any roads or land under its control
(vii) Noxious Weeds on Land vested in Trustees	Where any common or land is vested by the Crown in trustees other than a Municipal Council, (*a*) if prickly-pear is not eradicated within 3 months of notice, or (*b*) if trustees are unable to eradicate, or (*c*) there are no trustees, the Minister may lease same for not exceeding 21 years conditionally on lessee eradicating prickly-pear		Trustees must eradicate noxious weeds on land vested in them, and are liable for the expense of so doing if they fail to eradicate

TO NOXIOUS WEEDS IN THE AUSTRALIAN STATES.

South Australia.	Western Australia.	Tasmania.
Thistle and Burr Act 1862, 1887 Noxious Weeds Destruction Act 1891	Noxious Weeds Act 1904 ..	Californian Thistle Act 1883, 1884, 1887
(*a*) *Thistle.* — Star Thistle, Bathurst Burr (*b*) *Noxious Weeds* include all plants and weeds for the destruction of which any statutory provision is made (*c*) The Governor may, after resolutions have been carried by both Houses of Parliament, declare any weed to be a noxious weed	*Noxious Weeds.*—Such plants as the Minister, by notice in the *Government Gazette*, may declare to be noxious weeds either generally or in any particular locality	*Thistle.*—Cnicus arvensis (Californian Thistle). Xanthium spinosum (Bathurst Burr)
Notices are signed by a Chairman or Clerk of a Local Authority *within its District, or by a Justice* or Crown ranger or police officer or person authorized by the Commissioner of Crown Lands	The Governor may appoint Inspectors	Chief Inspector or any Inspector of Sheep appointed under the *Scab Act*
Any person authorized by a Justice or Crown Lands Ranger may enter upon land and search for noxious weeds, but no authority can be given to enter into any gardens, orchards, or growing crops	An Inspector may, at all reasonable times, enter upon any land for the purpose of ascertaining if any noxious weeds are growing thereon	An Inspector may, at any reasonable hour in the day time, enter upon any lands for the purpose of ascertaining if any thistles are growing thereon
Noxious weeds growing on waste lands of the Crown are to be eradicated by the Commissioner of Crown Lands, otherwise the Governor may direct the Treasurer to pay for the expenses of such eradication by any person authorized to do so	On a report to the Minister by any Municipal Council or by the Advisory Board of the Department of Agriculture that any noxious weed is growing on any Government railway reserve, stock route, camping ground, or unoccupied Crown land within one mile of cultivated land, all such lands must be cleared by the Minister for Lands and the Commissioner for Railways respectively	The Minister of Agriculture must cause all thistles growing on unoccupied waste lands to be cut down before blossoming
Noxious weeds upon waste lands of the Crown under the management of District Councils and Municipal Corporations must be eradicated by such Councils	(*a*) A Local Authority must clear all lands under its control and defray the cost out of its general revenue (*b*) A Road District Board may, and, if required by the Minister must, clear any road, reserve, or common of noxious weeds (*Road Districts Act*)	A Municipal Council must cause all thistles growing on streets and roads under its control to be cut down before blossoming
		Trustees must cut down all thistles before blossoming on all land vested in them

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE RELATING

Particulars.	New South Wales.	Victoria.	Queensland.
(viii) Noxious Weeds on Private Lands	(a) An Inspector may serve a notice on any owner or occupier of private lands on which prickly-pear is found, requiring him forthwith to eradicate the same (b) A Municipal Council may give notice generally or to an owner in particular to destroy within two months all noxious plants on his land and at least 1 chain back from his boundary and keep such land free from noxious plants	(a) An owner, lessee, or occupier, on receipt of notice, must forthwith destroy and eradicate all thistles on his land and the adjacent half width of road and keep them clear for six months (b) An occupier of land *leased from the Crown* may receive a refund from the Crown of any amount over £100 expended in any one year for the eradication of thistles	(a) Notice sent to occupier or person in charge, or failing these to owner, to extirpate and destroy noxious weeds within one month and keep the land clear for one year (b) An occupier of land fronting a water-course must *extirpate all water hyacinth* to a distance of 2 chains or to the centre of the water-course if less than 2 chains distant
(ix) Penalty for Failure to Eradicate Noxious Weeds	(a) Failure to commence and continue to eradicate prickly-pear, first offence, maximum £10; subsequent offences, maximum £20, minimum £5 (b) Failure to take reasonable steps to destroy noxious weeds, maximum £50	Failure to effectually clear land and half width of road within 14 days of notice and to keep clear for 6 months, first offence, maximum £5; subsequent offences, maximum £20, minimum £2	Permitting water hyacinth to be on land, maximum £50
(x) Procedure when Owner or Occupier Fails to Eradicate Noxious Weeds	(a) An Inspector may enter upon the land and do all things necessary to eradicate prickly-pear at the cost of the owner or occupier (b) A Municipal Council may eradicate noxious weeds at the owner's expense	On neglect or refusal to destroy thistles within seven days, any person authorized by a Justice or Municipal Officer may enter and eradicate such thistles at the expense of the owner, lessee, or occupier	If at the end of one month noxious weeds are not extirpated or land kept free for one year, a Local Authority may expend money on the extirpation thereof, such expense to be a charge on the land and recoverable from the occupier or owner
(xi) Procedure when Owner or Occupier is unknown or outside the State	If the cost of eradicating prickly-pear cannot be recovered and remains unpaid for 12 months, the Minister may let the land for a term not exceeding 21 years	The Supreme Court may make an order for the payment of the cost of eradication, such order to be advertised four times in the *Government Gazette*, and if within 18 months no payment is made, the Sheriff may sell the land or so much thereof as is necessary to pay the cost	
(xii) Contribution between Landlord and Tenant	Where on the 1st September, 1886, a lease was held and has since then been and is now held of any land, except Crown land, for an unexpired period, and no provision is made with respect to the cost of eradicating prickly-pear, the landlord and tenant must each contribute an equitable share of such cost	..	
(xiii) Miscellaneous	(a) Any person authorized to enter upon land and to destroy prickly-pear may take such indigenous timber growing thereon for the purpose of burning or destroying such prickly-pear and may dig pits and bury same therein (b) Penalty for growing, cultivating, or disseminating prickly-pear, not exceeding £20		The Governor may declare that an area be entirely freed from prickly-pear, and then the Local Authority and every occupier and owner must extirpate it. If, after the time prescribed, any prickly-pear is found, both the owner and occupier are liable to a penalty of not less than £5 nor more than £50

TO NOXIOUS WEEDS IN THE AUSTRALIAN STATES—*continued.*

South Australia.	Western Australia.	Tasmania.
(*a*) Owner or occupier, on receipt of notice, must within 21 days destroy all noxious weeds on his land and on one-half of the adjacent roads (*b*) An owner or occupier, on *notice from a District Council or* Municipal Corporation, must, within 30 days, destroy all shrubs, plants, or bushes known as acacia, briar, furze, prickly-pear, African boxthorn, and blackberry on his land and the *adjacent half* roads	(*a*) An occupier, on receipt of notice from an Inspector, must clear his land of noxious weeds within the time specified in the notice (*b*) A Road District Board may make *by-laws for requiring* the owner or occupier of land to keep the roads abutting on such land clear of *poisonous plants after* such plants have been so cleared by the Board	(*a*) An occupier of land must cut down all thistles thereon to prevent them from blossoming (*b*) An Inspector on finding thistles on land must give the occupier thereof notice to cut *same down within 14 days* (*c*) An occupier of land infested with thistles must make an annual return *of the estimated* area of such infested land
Failure to destroy noxious weeds after notice, maximum £10	Failure to clear land in accordance with notice, maximum £50	Failure to cut down all thistles before blossoming, maximum £20
If within 21 days an occupier or owner refuses or neglects to destroy weed, any authorized person may do so at his expense	If an occupier fails or neglects to clear his land in accordance with the notice, an Inspector may do the work at his expense	If occupier fails to take steps to cut down thistles within 14 days, an Inspector may authorize any person to do so at the expense of such occupier
If there is no occupier, notice may be given by advertisement *in the Government Gazette*	If an owner is absent from Western Australia, notice must be *served upon his agent*	An Inspector, without serving any notice, must forthwith take *steps for cutting down thistles* and may proceed *ex parte* to recover the expense thereof, and the amount so recovered remains a charge upon the land
..	If the occupier has the *right of* occupation for 6 years or more, he must bear the whole expense; if for 4 years and less than 6, two-thirds; if for 2 years and less than 4, one-third; and if for less than 2 years, the owner must pay the whole expense	..
Where noxious weeds are growing, and statutory powers have not been fully exercised, the Commissioner of Crown Lands must give notice to a Local Authority to exercise such powers within not less than 30 days, and in case of its failure to do so may exercise such powers himself at the expense of such Local Authority		(*a*) *Any person removing* or selling any hay, straw, grass seed or any kind of grain in which are any thistle seeds is liable to a penalty of not less than £2 nor more than £25 (*b*) A Municipal Council may make by-laws prescribing the means to be adopted for the destruction and extirpation of any noxious weed (*c*) A Municipal Council may levy a special rate for the eradication of noxious weeds

IMPORTATION OF ANIMALS FROM FOREIGN COUNTRIES.

1. **General.**—The importation of animals from foreign countries is under the control of the *Commonwealth*, and the following are the chief provisions of the Acts and Regulations governing the same :—

2. **Acts in Force.**—Quarantine Act 1908, 1912.

3. **Diseases in Animals.**—Glanders, farcy, pleuro-pneumonia contagiosa, foot and mouth disease, rinderpest, anthrax, Texas or tick fever, hog cholera, swine plague, mange, scab, surra, dourine, rabies, tuberculosis, actinomycosis, variola ovina, and any disease proclaimed from time to time by the Governor-General.

4. **Prohibition of Importation, &c.**—The Governor-General may—

(*a*) declare any ports to be ports where imported animals may be landed,
(*b*) appoint quarantine stations,
(*c*) prohibit the importation of any animals,
(*d*) prohibit the removal of any animals from any part of the Commonwealth in which disease exists,
(*e*) declare any part of the Commonwealth to be a quarantine area,
(*f*) declare any animals to be subject to quarantine.

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
			A.—ACTS AND REGULATIONS RELATING
i) Acts in Force ..	Stock Act 1901 .. .. Stock Diseases (Tick) Act 1901, 1915	Stock Diseases Act 1915 ..	Diseases in Stock Act 1915
ii) Definitions ..	(*a*) *Stock*. — Cattle, sheep, goats, swine, dogs, and other proclaimed animals (*Stock Act*) (*b*) *Stock*.—Horses, cattle, asses, mules, camels, sheep, swine, or goats, or other proclaimed animals (*Stock Diseases Act*) (*c*) *Infectious or Contagious Disease*.—Cattle plague, foot and mouth disease, sheep-pox, and any other proclaimed disease (*Stock Act*) (*d*) *Disease*.—Any proclaimed disease not being scab in sheep, and includes cattle ticks (Ixodes bovis, and Boophilus Australis) (*Stock Diseases Act*) (*e*) *Diseased* means that stock have Texas or tick fever or have cattle ticks on them (*Stock Diseases Act*) (*f*) *Infected* means that the stock are diseased or are in a herd in which are diseased stock or have been upon any and upon which diseased stock have been within the preceding 3 months (*Stock Diseases Act*)	(*a*) *Stock* includes bull, cow, ox, calf, bison, buffalo, stallion, mare, gelding, foal, ass, mule, ram, ewe, wether, lamb, hogget, boar, sow, barrow, sucker, pigeon, goose, fowl, duck, turkey, pea-fowl, guinea-fowl, dog, bitch, camel, goat, deer, antelope, elephant, cat (*b*) *Disease*. — Proclaimed diseases are actinomycosis, anthrax, avian diphtheria, bacillus necrophorus, black-leg, cattle tick, contagious abortion, dourine, farcy, foot and mouth disease, fowl cholera, glanders, hog cholera, hog plague, infectious pneumo-enteritis, influenza, mange, pleuro-pneumonia contagiosa, poultry tick, rinderpest, roup, scab, scabies, sporadic urticaria, surra, swine erysipelas, swine fever, swine measles, tick fever, trichina, tuberculosis (*c*) *Diseased Stock*. — All stock proclaimed to be diseased	(*a*) *Stock* includes horses, cattle, sheep, swine, camels, and goats, and other proclaimed animals (*b*) *Disease*. — Actinomycosis, anthrax, malignant growths (cancer), foot and mouth disease, glanders and farcy, pleuro-pneumonia contagiosa, rinderpest, tuberculosis, variola, scab, malignant catarrh, rabies, contagious pneumonia in swine, swine fever, swine plague, epizootic lymphangitis, dourine or equine syphilis, strangles, surra, sheep fly, maggot disease, contagious mammitis, cattle tick, Texas or tick fever, and any other infectious or contagious disease affecting stock or any other proclaimed disease (*c*) *Diseased Stock*.—Stock actually suffering from or affected with disease (*d*) *Infected Stock* includes stock which has been in contact with diseased stock during the preceding 3 months

5. Provisions for landing imported Animals.—The following provisions must be observed when animals are imported from other countries :—

(*a*) they may be landed only at proclaimed ports,
(*b*) they may not be landed without a permit from a quarantine officer,
(*c*) they must be carefully inspected by a quarantine officer,
(*d*) at least seven days' notice of the arrival must be given to the Chief Quarantine Officer, except in the case of animals from New Zealand, when three days' notice is sufficient,
(*e*) the master of the ship on which are imported animals must make a declaration as to the health of the animals while on board,
(*f*) a declaration from the owner or a certificate from a veterinary surgeon or both, according to the animal, must be forwarded to the Chief Quarantine Officer.

6. Quarantining imported Animals.—The quarantining of imported animals is subject to the following provisions :—

(*a*) if the imported animals (other than camels, horses, or dogs) come from a country which is free from disease, and are accompanied by a certificate of cleanness, they may be landed without quarantine,
(*b*) if any imported animal is not suffering from any disease it may be placed under quarantine surveillance and treated as prescribed,
(*c*) in all other cases the animal is to be quarantined for a period ranging from 14 to 60 days, according to the class of animal.

7. Destruction of imported Animals.—If a quarantine officer certifies that an animal is diseased and is a source of danger, the Minister may order it to be destroyed, but if any animal so destroyed is found not to be diseased compensation is to be paid to the owner thereof.

RELATING TO DISEASES IN STOCK.

South Australia.	Western Australia.	Tasmania.
TO STOCK GENERALLY.		
Stock Diseases Act 1888, 1903, 1915, 1918	*Stock Diseases Act 1895, 1906*	*Contagious Diseases (Cattle) Act 1861, 1880, 1896, 1901, 1909, 1912, 1918* Diseased Animals Importation Act *1883, 1887, 1910*
(*a*) *Stock.*—Camels, horses, cattle, sheep, goats, deer, dogs, swine, and other proclaimed animals (*b*) *Disease.*—Glanders, farcy, equine fever, rinderpest, pleuro-pneumonia, tuberculosis, anthrax, scab, sheep-pox, foot and mouth disease, catarrh, swine fever, trichinosis, rabies, lice, tick, cancer, contagious pneumonia (called pants), affecting swine, actinomycosis, tick fever, and any other proclaimed disease (*c*) *Diseased Stock.*—All stock actually suffering from or affected with disease (*d*) *Infected Stock.*—All stock not actually diseased, which forms or during the preceding 3 months has formed part of a *lot containing diseased stock or* which has been in contact with diseased stock or with stock treated for the cure of any *disease*	(*a*) Stock — Horses, cattle, sheep, goats, swine, camels, deer, antelope, llamas, buffaloes, and other ruminants, dogs, poultry, and other proclaimed animals (*b*) *Disease.*—(i) *Horses :* anthrax, glanders, farcy, influenza, epizootic lymphangitis, tick, South African horse sickness, dourine ; (ii) *Cattle :* actinomycosis, pleuro-pneumonia, warbles, anthrax, cattle tick or Texas fever, cancer, rinderpest, tuberculosis, foot and mouth disease ; (iii) *Sheep :* anthrax, catarrh, ticks, lice, footrot, sheep-pox, foot and mouth disease, variola ovina ; (iv) *Pigs :* anthrax, swine fever, foot and mouth disease, contagious pneumonia, hog cholera, tuberculosis, trichinosis ; (v) *Goats, Deer, Antelopes :* anthrax, foot and mouth disease ; (vi) *Camels :* surra, mange, dourine ; (vii) *Dogs :* rabies, mange ; (viii) *Poultry : roup, cholera, ticks, lice* (*c*) *Infected Stock.*—Stock suffering from disease or which has been in contact with diseased stock or has been treated during *the* preceding 3 months	(*a*) *Cattle.*—Bull, ox, bullock, steer, cow, heifer, calf (*Contagious Diseases Act*) (*b*) *Animal.*—An animal of any kind except mankind (*Diseased Animals Importation Act*) (*c*) *Disease.*—Anthrax (anthrax, splenic fever, splenic apoplexy), cattle plague (rinderpest), contagious pleuro-pneumonia, foot and mouth disease, bovine tuberculosis, and any proclaimed disease (*d*) *Poultry Disease.* — Fowl diphtheria (roup), favus (Lophophyton gallinæ), canker, chicken-pox. fowl tick (Argas persicus), enteritis, tuberculosis, and the itch mite (Sarcoptes mutans) (*e*) *Diseased* means infected with disease

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

A.—ACTS AND REGULATIONS RELATING

Particulars.	New South Wales.	Victoria.	Queensland.
(iii) Proclaimed Districts	(Sheep Districts only) ..	(Sheep Districts only) ..	The Governor may constitute any part of the State a Stock District, and assign one or more districts to an Inspector
(iv) Stock Funds ..	..	..	(a) The Stock Diseases Fund consists of all assessments, penalties, and other moneys received (b) The Minister may levy an annual assessment on each owner, not exceeding 2s. 6d. on every 100 head of horses or cattle or 6d. on every 100 sheep or branded or earmarked goats. Owners of less than 50 head of cattle or horses or 250 sheep or goats are exempt from assessment
(v) Returns of Stock to be furnished by Owners	(Sheep only)	(Sheep only)	Returns furnished under the *Stock Returns Act* are to be used for the purpose of making assessments
(vi) Appointment of Inspectors	(a) The Governor may appoint a Chief Inspector for New South Wales and Inspectors for one or more districts. Inspectors under the *Pastures Protection Act* must be certificated (b) The Governor may appoint Inspectors of horned cattle at the various ports	The Governor may appoint a Chief Inspector of Stock, Inspectors of Stock, and other officers	The Governor may appoint a Chief Inspector of Stock, Inspectors of Stock, and Honorary Inspectors, who, except the last-named, must pass an examination before being appointed
(vii) Powers of Inspectors with respect to Stock	An Inspector may at any time (a) enter upon any land, building, etc., for the purpose of examining stock; (b) take possession of infected or suspected stock; (c) order an owner to muster stock; (d) detain travelling stock for examination; (e) order any person in charge of infected travelling stock to take them back whence they came if under a distance of 40 miles	An Inspector of Stock has the power to enter at any time into any ship, land, or building, not being a dwelling house, for the purpose of inspecting any stock or enforcing the provisions of the Act or Regulations thereunder	An Inspector may at any time (a) enter upon any holding to inspect stock; (b) detain travelling stock for examination; (c) examine and detain travelling stock; (d) order travelling stock to be forthwith taken back to whence they came; (e) impound or quarantine diseased or infected stock
(viii) Prohibition of Introduction of Stock from other States	The Governor may absolutely prohibit for a specified time the introduction of any stock, fodder or fittings from any other State in which there is reason to believe any infectious or contagious disease exists	(a) The Governor may prohibit the introduction of any infected stock and of the hides, skins, horns, hoofs, or other parts of any stock (b) The introduction by land or sea of diseased stock is prohibited	The Governor may prohibit the introduction from another State of infected or suspected stock
(ix) Provisions under which stock may be introduced by sea from other States. (For importations from Foreign Countries, see Commonwealth Act in text)	(a) Cattle which are not infected must be quarantined for not less than 14 days. Cattle which are infected on arrival or within one month thereafter must be destroyed, with all fodder, fittings, and effects within 48 hours (b) No imported stock or fittings may be landed until examined by an Inspector and a permit for removal granted	(a) The introduction of stock by sea is permitted in clean vessels only. (b) Stock newly introduced must not travel until it has been examined by an Inspector, who must be satisfied that it is free from disease (c) Introduced diseased stock may be seized by an Inspector and destroyed or quarantined and treated (d) Stock introduced contrary to a prohibition may be destroyed or otherwise disposed of as the Minister directs	(a) A declaration and certificate of cleanness must be delivered to an Inspector on arrival, who forthwith examines such stock (b) If an Inspector is in doubt whether any stock is infected, he may temporarily detain such stock on board ship or quarantine them and cause them to be treated

RELATING TO DISEASES IN STOCK—*continued.*

TO STOCK GENERALLY—*continued.*

South Australia.	Western Australia.	Tasmania.
..	(Sheep Districts only).. ..	The Governor may proclaim Cattle Districts, and any municipality or two more municipalities *jointly* may be declared a District
..	..	The Contagious Diseases (Cattle) Fund is supported by a contribution not exceeding 3d. per annum for each head of cattle over 6 months of age and 2s. per horse; but where one or more municipalities are declared a District the maximum rate for cattle is 6d. The sum of ½d. per head is to be deducted and paid *to the Chief Inspector of Stock.* Owners of less than 4 head are exempt
..	(Sheep only)	Every cattle owner must furnish an annual return of the number and description of cattle in his possession
The Governor may appoint a Chief Inspector of Stock, a Deputy Chief Inspector *of* Stock, *Inspectors of Stock, and* temporary Inspectors, all of whom must be certificated	The Governor may appoint a Chief Inspector of Stock and other Inspectors of Stock, and he may *also appoint in sub-districts* Inspectors and Assistant Inspectors of Sheep. The power of appointing Assistant Inspectors of Sheep may be delegated to any Government Resident or Resident Magistrate	The Governor may appoint a Chief Inspector of Sheep and other Inspectors of Sheep, who *are also to act as Inspectors of* Stock
An Inspector may enter any conveyance or land for the purpose of inspecting any stock, and may direct the owner of diseased or infected stock to *place such stock in a quarantine* ground and to treat them. He may also kill one head, or, if there are over 100 head, two head per hundred for the purpose of deciding whether they are diseased	An Inspector may enter any vessel or conveyance or upon any land or into any building, not being a dwelling-house, for the purpose of inspecting stock or *enforcing the provisions of the* Act or Regulations thereunder	..
The Governor may prohibit the introduction of any stock, fodder, or fittings from any other State, during such periods as may appear to *be necessary for* preventing the introduction of disease	The Governor may prohibit the introduction of any stock from any place either by land or sea	(*a*) The Governor may prohibit the importation of cattle from any infected country, or may permit them to be landed *only at certain ports* (*b*) The importation of any packing likely to introduce Queensland cattle tick (Ixodes bovis) is prohibited
(*a*) Cattle or sheep may not be introduced by sea without a certificate from an *Inspector* or veterinary surgeon at the port of shipment that they are clean (*b*) Horses and swine must be accompanied by a declaration of health from the owner certified to by an Inspector or veterinary surgeon (*c*) Diseased or infected stock may be destroyed or removed to quarantine and treated	(*a*) No stock may be imported unless accompanied by a certificate from a veterinary surgeon that they were free from disease when placed on board (*b*) No imported stock may be landed until examined by an Inspector and *a permit granted* (*c*) Non-infected stock must be quarantined (*d*) Stock which on arrival or within 3 months thereafter is *infected must be destroyed* by the owner within 48 hours, together with fodder, fittings, etc. Swine from Queensland may be landed only at Fremantle and must be quarantined for 30 days	(*a*) Fourteen days' notice must be given of the importation of cattle (*b*) Cattle may only be landed at certain specified ports (*c*) Cattle must be accompanied by a certificate of cleanness *from an Inspector, and* a certificate from a veterinary surgeon that they were recently subjected to the tuberculosis test and be quarantined on arrival for not less than [illegible] days (*d*) Three days' notice of the arrival of poultry must be given, and a declaration and certificate of freedom from disease furnished

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

A.—ACTS AND REGULATIONS RELATING

Particulars.	New South Wales.	Victoria.	Queensland.
(x) Duties of Masters of Vessels carrying Stock	The Master of any vessel in which are imported stock must make a declaration to an officer of Customs regarding the stock shipped	..	..
(xi) Provisions under which Stock may be introduced by Land	Stock may not be introduced until examined by an Inspector and a permit for removal granted	(a) Stock may only be introduced at certain scheduled places, and not less than 24 nor more than 96 hours' notice must be given to an Inspector (b) An Inspector must be satisfied that stock is free from disease before authorizing its introduction, and such stock must not travel until it has been inspected (c) An Inspector may order stock and fittings to be disinfected or treated before introduction	(a) Stock may only be introduced at appointed places (b) The owner of stock must obtain from an Inspector a permit to travel such stock, which must not be removed from their place of destination within 3 months except under a fresh permit (c) No stock may be introduced without a certificate of cleanness from the Inspector in the other State contiguous to the crossing place (d) Stock must be examined by an Inspector, who may refuse admission until they have been observed and treated in the State of origin
(xii) Exportation of Stock, etc.	An Inspector of Horned Cattle must examine all cattle intended for export, and, if they are found free from disease, give a certificate of cleanness, and see that they are embarked	..	Hides may only be exported when accompanied by a declaration that they have been salted and stacked and remained in the stack for not less than 7 days, and have been examined by an Inspector
(xiii) Quarantine Stations	The Governor may proclaim any ground to be a quarantine station	..	The Minister may establish quarantine stations in all necessary places
(xiv) Proclamation of Infected Areas	The Governor may declare any of the Australian States or parts thereof to be infected, if there had existed therein within the previous twelve months any disease in stock	..	The Governor may declare any part of Queensland to be an infected area
(xv) Notification of Diseased Stock	Notice must be given to the nearest Inspector and to the nearest member of the police force within 48 hours when the stock is kept on any land by the occupier or his manager, agent, or superintendent, and within 24 hours by the person in charge of travelling stock	The owner of infected stock must forthwith give notice to the Chief Inspector or to the Inspector for his district	(a) An owner of stock must notify the nearest Inspector when disease appears in stock upon his holding or in his travelling stock (b) An owner of swine must similarly notify within 24 hours
(xvi) Isolation of Diseased Stock	An owner, on the discovery of disease, must have the diseased stock drafted out and kept separate, as far as practicable, from stock which are not diseased	Any stock which has been in direct or indirect contact with any stock affected with anthrax must be forthwith isolated	An owner must, when disease appears in his stock, forthwith draft out and continue to keep separate all diseased stock from stock not suffering from disease
(xvii) Quarantining Diseased Stock	An Inspector may order an owner of infected stock to remove them to any other locality, and may, with the approval of the Minister, place them in quarantine, and declare any land where such stock are or recently have been to be a quarantine area	When an Inspector finds any disease (except scab or influenza in sheep) he may declare the premises where it is found to be a quarantine district	(a) An Inspector may define the boundaries of any infected area and place it in quarantine, from which stock must not be removed unless authorized by the Minister (b) An Inspector may impound or quarantine any stock which are or are suspected to be diseased

RELATING TO DISEASES IN STOCK—*continued.*

TO STOCK GENERALLY.—*continued.*

South Australia.	Western Australia.	Tasmania.
The Master of a vessel having on board any stock must give notice to an Inspector within 24 hours of arrival, and must not land stock, etc., without his permission	The Master of a vessel on which are imported stock must make a declaration with regard thereto and deliver it to an Inspector	The Captain of a vessel having cattle on board to be landed must notify the Inspector of Stock at the port of landing
(*a*) No stock may be introduced except at proclaimed points of entry (*b*) Twelve hours' notice must be given of the introduction by rail (*c*) The importer of cattle must have a certificate of health from an Inspector or a declaration from the breeder or owner (*d*) Camels from Western Australia must be treated and dressed and placed in quarantine for not exceeding 3 months, and not released therefrom unless healthy and free from mange	(*a*) Same provision as for stock introduced by sea (*b*) Cattle may only be introduced from the Eastern States when accompanied by a certificate that they are free from tuberculosis (*c*) An owner of stock must give at least 7 days' notice of their introduction (*d*) Swine may only be landed at Fremantle and must be quarantined for 30 days	..
..	..	Sheep may not be exported unless certified to be clean Three days' notice to be given to an Inspector
The Governor may appoint quarantine grounds for the reception and detention and treatment of diseased or infected stock	The Governor may set apart land for quarantine stations	The Chief Inspector of Stock may rent or purchase and the Chief Inspector of Sheep may rent land for quarantine grounds, with the consent of the Governor
The Governor may appoint areas within the State from which no stock may be removed except in accordance with regulations, and may prohibit the removal of stock from one part of the State to another part	(*a*) Any district in which there are or have been within 6 months any infected sheep is an infected area (*b*) East Kimberley District is a quarantine area, and cattle may only leave at Wyndham after having been dipped	The Governor may declare "Clean Sheep Districts" and "Quarantine Sheep Districts"
(*a*) An owner of diseased stock must, within 24 hours of the discovery thereof, notify the nearest Inspector, and the Chief Inspector at *Adelaide* (*b*) An owner of swine affected with disease must give immediate notice thereof to the nearest Inspector	An owner of infected or suspected stock must, as soon as he has discovered that they are infected, forthwith give notice to the nearest Inspector	Every person having in his possession or under his charge any diseased or suspected cattle must forthwith give notice to an Inspector
An owner must keep diseased stock from coming into contact with stock belonging to other persons	An owner of infected or suspected stock must keep such stock from coming into contact with other stock until otherwise ordered by an Inspector	Every person having in his possession or under his charge any diseased or suspected animal must, as far as practicable, keep any such animal separate from animals not so affected
(*a*) An Inspector may direct the owner of diseased or infected stock to place such stock in a quarantine ground to be appointed by such Inspector (*b*) The Commissioner of Lands may order infected stock to be quarantined	If it appears to an Inspector that disease exists or has within the preceding 30 days existed on any land he must declare such land to be an infected holding in which diseased stock must be kept until released, and notify the Chief Inspector	When it appears to the Minister that disease exists in a shed, field, or other place, he must declare such place to be a place infected with disease, and animals must not be moved into, within, or out of any place infected with disease

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

A.—ACTS AND REGULATIONS RELATING

Particulars.	New South Wales.	Victoria.	Queensland.
(xviii) Treatment of Diseased Stock	(*a*) An Inspector may order the owner of infected stock to disinfect, dress, inoculate, or otherwise treat such stock under the supervision of an Inspector (*b*) All infected stock must be branded with red paint	The Chief Inspector may direct the owner of infected stock to treat such stock in order to prevent the spread of disease	(*a*) An Inspector may order stock infected with disease to be treated (*b*) An Inspector may order that all stock, before being removed from an infected area, must be treated to his satisfaction (*c*) An owner may appeal to the Minister against the decision of an Inspector
(xix) Inoculation of Stock	(*a*) Only certificated inoculators may practice inoculation (*b*) Notice of inoculation must be given to the Government Veterinary Surgeon and the District Inspector of Stock (*c*) Inoculated cattle must not be removed for 30 days (*d*) The carcass of stock dying within 30 days of inoculation must be burned (*e*) The results of inoculation must be reported to the Government Veterinary Surgeon	..	Only qualified veterinary surgeons or other persons approved by the Chief Inspector of Stock may practise the protective inoculation of stock against disease, except stock-owners inoculating their own stock against pleuro-pneumonia contagiosa, Texas fever or blackleg
(xx) Destruction of Diseased Stock	(*a*) The Minister may order the destruction of infected stock whenever such destruction would tend to prevent the spread of disease or the cause of disease (*b*) Any stock moved contrary to any order or regulation may be seized by an Inspector or Officer of Police, and, at the discretion of the Minister, sold or destroyed	Whenever the Governor is satisfied, upon the report of an Inspector, that any stock is diseased he may order the destruction of such stock	The Minister may order the destruction of infected stock whenever such destruction would tend to prevent the spread of disease, also of any diseased stock which has been impounded or quarantined by an Inspector
(xxi) Procedure with regard to Straying Stock	Stock straying within a quarantine area must be examined and treated. If the owner is known, he must take them to a secure paddock, and if unknown, they are to be disposed of as directed by the Minister	..	A Local Authority may destroy any diseased stock suffering from malignant growths (cancer) tuberculosis or pleuro-pneumonia contagiosa found straying upon any road or land under its control, without compensating the owner, and must notify an Inspector
(xxii) Compensation for the Destruction of Stock		The owner of diseased stock, which is destroyed, has no claim for compensation for their destruction	Compensation equal to one-half of the value for Australian-bred stock or full value for imported stock is paid when the animal destroyed is found to be free from disease, the value of products from boiling-down being taken into consideration when estimating compensation

RELATING TO DISEASES IN STOCK—*continued.*

TO STOCK GENERALLY—*continued.*

South Australia.	Western Australia.	Tasmania.
(*a*) An Inspector may direct the owner of diseased stock to take measures regarding their treatment or to do such acts as are necessary to eradicate or check the spread of disease (*b*) If pleuro-pneumonia is found in a herd of cattle, the Chief Inspector may cause such herd to be inoculated	An Inspector of Stock may require that anything which is in contact with diseased or infected stock be cleansed and disinfected	..
Inoculation may only be carried out by a competent person	It is unlawful for any person, without the consent of the Chief Inspector, to inoculate or cause any stock to be inoculated with the virus of any disease, whether such virus be in an attenuated form or not	..
(*a*) The Commissioner of Lands, whenever any stock is diseased, and it is desirable in order to eradicate disease or prevent its spread, may order *such stock to be forthwith* destroyed by the owner (*b*) Diseased swine must be destroyed	(*a*) Stock infected with any infectious or contagious disease may be destroyed (*b*) If there is no efficient means *of* isolation of diseased *stock, the Chief Inspector may* order such stock to be killed (*c*) Diseased swine must be destroyed	The Minister may cause all animals to be destroyed which are (*a*) affected with disease, (*b*) in contact with diseased animals, (*c*) suspected of being affected *with disease or of being in an* infected place, (*d*) within a prescribed distance of an infected place
An Inspector may seize and destroy diseased stray stock	..	..
(*a*) No compensation is payable for stock destroyed under authority except that full compensation is paid to the owner of stock destroyed for examination which is found to be free from disease (*b*) When apparently infected swine after destruction are found free from disease, the Governor must compensate the owner with three-fourths of the value less the amount realized from the sale of the carcass	No compensation is paid to the owner of any stock destroyed owing to being diseased when imported or within 3 months thereafter	The Minister must pay compensation for animals slaughtered to the extent of three-fourths of their value but not exceeding £20, and may withhold compensation *if the owner has* been guilty of an offence against the Act. Any insurance is to be deducted from the amount of compensation

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

A.—ACTS AND REGULATIONS RELATING

Particulars.	New South Wales.	Victoria.	Queensland.
(xxiii) Provisions with regard to Travelling Stock	An owner must obtain a permit from an Inspector to travel stock, but for less than 20 miles in certain districts a statement signed by the owner is sufficient. Not less than 12 nor more than 48 hours' notice must be given before crossing a run. When diseased stock are being *travelled, notice must be* given to the owner of a holding through which they will pass, and they must only travel by daylight, and every precaution must be taken to avoid contact with the stock on the run	..	(*a*) *An owner, before starting* to travel stock, must obtain a permit from the nearest Inspector, who notifies all the Inspectors in such districts through or adjacent to which the stock will travel (*b*) A drover must give not less than 24 nor more than 48 hours to the owner before *entering his holding* (*c*) Diseased travelling stock are to be quarantined and *treated at the nearest* convenient place
(xxiv) Powers of Local Authorities under Local Government Acts	A Municipal Council may provide, control, and manage tanks for the dipping of sheep and cattle	A Municipal Council may construct and maintain dipping places and portable dipping tanks for sheep	..

B.—ACTS AND REGULATIONS RELATING

Particulars.	New South Wales.	Victoria.	Queensland.
(i) Acts in Force ..	Pastures Protection Act 1912, 1918, 1920. (This Act also relates to the Destruction of Rabbits)	Stock Diseases Act 1915 .. Sheep Dipping Act 1915	No special Act relating to sheep, the provisions of the Diseases in Stock Act 1915 relate to all kinds of stock
(ii) Definitions ..	(*a*) *Infected Sheep.*—Any sheep affected with scab, influenza, or catarrh, or which have formed part of a flock so affected, or which have been in contact within 6 months with such sheep or which have been dressed or treated within the same period (*b*) *Destroy.*—To entirely consume by fire or bury not less than 3 feet underground, or, having burnt the wool and skin, boil down the carcass	(*a*) *Infected Sheep* (with catarrh or influenza) include sheep which have mixed with sheep infected with catarrh or influenza within the preceding 6 weeks (*b*) *Infected Sheep* (with scab) includes all sheep which (i) are actually infected with scab, (ii) have been within the preceding 4 months treated for scab, (iii) are branded with S, (iv) have been dipped or treated without authority during the preceding 4 months except in a clean district, (v) are on a run or travelling with sheep infected as (i) to (iv) (*c*) *Lice.*—The insects Trichodectes sphærocephalus (*d*) *Ticks* — Melophagus ovinus (*e*) *Destroy.*—Bury not less than 2 feet deep or consume by fire or boil down	*Destroy.*—Consume by fire, or bury under the ground, kill, or otherwise destroy to the satisfaction of an Inspector
(iii) Proclaimed Sheep Districts	The Governor may constitute Pastures Protection Districts	The Governor may divide Victoria into districts for the purposes of the Part of the Act relating to Scab in Sheep	

RELATING TO DISEASES IN STOCK—*continued.*

TO STOCK GENERALLY—*continued.*

South Australia.	Western Australia.	Tasmania.
(*a*) Any person with stock desirous of crossing a run or *leased Crown lands or Crown* lands within any hundred must give not less than 24 hours' nor more than 7 days' notice to the proprietor or nearest police constable or Crown Lands Ranger, as the case may be (*b*) A proprietor of land may detain and examine travelling *stock if suspicious of disease*, and may detain them for examination by an Inspector	..	..
(*a*) A District Council may make by-laws to enforce the destruction of infected cattle *which, if slaughtered, would* be unfit for human food (*b*) A Municipal Corporation or District Council may construct dipping places or portable dipping tanks	..	(*a*) A Local Authority may make by-laws providing for the establishment, control and management of dips (*b*) Where a district is proclaimed on application of one or more Municipalities, the cattle tax is paid into the Municipal Fund for the purpose of paying for a veterinary surgeon

TO SHEEP ONLY.

South Australia.	Western Australia.	Tasmania.
No special Act relating to sheep, the provisions of the Stock *Diseases Act* 1888, 1903, 1915, 1918, relate to all kinds of stock	Scab Act 1888, 1891, 1893, 1894	Diseased Animals Importation Act 1838 *Stock Act* 1875, 1877, 1879, 1883, 1889, 1905, 1914
Destroy.—Entirely consume by fire, or bury not less than *3 feet deep, or consume the wool* and skin by fire and boil down the carcass	(*a*) *Infected Sheep*.—(i) any sheep infected with scab, (ii) any *sheep in a flock in which* are infected sheep, (iii) any sheep which have been in contact during *the preceding 6 months with* infected sheep, (iv) any sheep depastured on the same land as infected sheep, (v) any sheep on board a vessel or in a yard, truck, etc., in which there have been within 3 months infected sheep unless such are disinfected, (vi) all infected sheep until a clean certificate is granted (*b*) *Destroy*.—Bury not less than 2 feet underground or consume by fire or boil down	(*a*) *Diseased* means actually infected with scab or where the *Acarus or scab insect has been* found (*b*) *Infected* applies to all *diseased sheep, to sheep in a flock* containing diseased sheep or which have been during the preceding 2 months in such a flock, and to all sheep that within the preceding 2 months have been dipped for scab (*c*) *Lice*.—Trichodectes sphærocephalus (*d*) *Ticks*.—Melophagus ovinus (*e*) *Destroy*.—Bury at a depth of not less than 2 feet or consume by fire or boil down
	The Governor may proclaim Scab Districts	The Governor may divide the State into Sheep Districts

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

B.—ACTS AND REGULATIONS RELATING

Particulars.	New South Wales.	Victoria.	Queensland.
(iv) District Boards	One Pastures Protection Board is constituted for each district, consisting of eight directors elected by persons whose names are on the roll	The Governor may appoint for one or more districts a Board of Advice consisting of five or more members, each of whom must reside in the district and own at least 500 sheep. No member may act if he owns sheep with scab	..
(v) Functions of District Boards	A Pastures Protection Board may (*a*) sanction the occupation of Crown land for the detention of sheep, and (*b*) hear and determine appeals from the decisions of Inspectors	(*a*) Inspectors must confer with the Board (*b*) A Board must meet at least once a month in a scab district to consider the Inspector's report, and at least once a year in other districts, and report thereafter to the Minister (*c*) A Board must consult with and advise the Inspector	..
(vi) Sheep Funds ..	The Funds of a Board consist of rates not exceeding 4d. per head of large stock and ½d. per head of sheep, subsidies, fines, penalties, and other moneys received	..	..
(vii) Returns of Sheep to be furnished by Owners	Every owner or occupier liable to be rated must make an annual return of his land and large stock or sheep in the district or travelling in any other district	(*a*) An Inspector may require from an owner of sheep a correct account of all sheep on his run (*b*) An owner must make a return of all sheep dipped within one month of such dipping	..
(viii) Powers of Inspectors with regard to Sheep	(*a*) An Inspector may enter at any time upon any run in order to (i) inspect any sheep; (ii) take possession of and detain any sheep until the requirements of the Act have been complied with; (iii) carry out, at the owner's expense, any of the provisions of the Act which he fails to comply with; (iv) exercise the powers delegated to him (*b*) Where the owner disputes infection an Inspector may kill one sheep in each flock for evidence, except imported sheep	(*a*) An Inspector may enter, between sunrise and sunset, into any land or place in the execution of his duty (*b*) Where infection is disputed, an Inspector may kill one sheep for evidence	..
(ix) Prohibition of Introduction of Sheep from other States	The Governor may absolutely prohibit the introduction of sheep from an adjoining State for a period not exceeding 6 months	The Governor may prohibit the introduction of sheep from New South Wales or South Australia, unless under such conditions as are described in an order	..

RELATING TO DISEASES IN STOCK—*continued.*

TO SHEEP ONLY—*continued.*

South Australia.	Western Australia.	Tasmania.
..	..	..
..	..	..
..	An annual contribution of not more than £2 for every 1,000 sheep owned by each owner	..
..	(*a*) *Every sheep-owner must* make an annual return of the number of sheep kept by him (*b*) A list of infected runs is to be published monthly in the *Government Gazette* (*c*) An owner of sheep in the South-West Division must make a declaration as to the number of sheep dipped and send same to the nearest police officer in charge of a station	(*a*) *Every sheep-owner must* make an annual return of the number of sheep in his possession, also at any time when required to do so by an Inspector (*b*) A return of the number of sheep dipped must be sent to the Chief Inspector after such dipping
..	An Inspector may enter upon any run and inspect and examine any sheep, and an owner must muster sheep if required to do so	(*a*) An Inspector may enter at reasonable times upon any land or premises and examine sheep, and may require the owner to muster same; but such mustering is not compulsory between the 1st May and the 30th September (*b*) The Chief Inspector must advertise infected runs (*c*) The Chief Inspector, with the consent of the Governor, may erect and maintain public dips
..	..	The Governor may prohibit the importation of sheep without a permit

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
			B.—ACTS AND REGULATIONS RELATING
(x) Provisions under which Sheep may be introduced by sea from other States. (For Importation from Foreign Countries, see text)	(a) Notice of the arrival of sheep must be given to an Inspector, and the sheep examined before being landed (b) Infected sheep must be quarantined and dressed and detained for 21 days after the last dressing (c) Uninfected sheep must be quarantined for such time and dressed as prescribed	Sheep introduced by sea, whether infected or not, must not be driven inland without the authority of an Inspector	..
(xi) Provisions under which Sheep may be introduced from other States by land	(a) Owner to give not less than 48 nor more than 96 hours' notice to an Inspector (b) Sheep may be introduced at specified crossing places only (c) Certificate of cleanness from Inspector of State of origin required (d) Travelling permit required, and sheep cannot leave their place of destination for 6 months except under a fresh permit (e) Inspector may refuse to admit sheep until they have been quarantined for 3 months and dressed	..	..
(xii) Notification of Infected Sheep by Owner, etc.	An owner of infected sheep must within 24 hours (a) post up notices that his run is infected, (b) insert similar notice in the nearest local newspaper for 3 weeks, (c) notify the nearest Inspector, (d) notify the nearest resident director, (e) notify the proprietors of adjoining runs, (f) brand all infected sheep with a red S	(a) An owner of infected sheep must (a) notify an Inspector, (b) within 3 days post up notices on roads intersecting his run, (c) advertise for two succeeding weeks, (d) brand sheep with red S	..
(xiii) Isolation of Infected Sheep	An owner must cause infected sheep to be shepherded by day and yarded at night	Infected sheep, unless in a well-fenced paddock, must be shepherded by day and folded at night	..
(xiv) Quarantining Infected Sheep	An Inspector may quarantine an infected run or part thereof, and must define the boundaries, and such quarantine must extend for one mile at least beyond such boundaries	(a) The Governor may order that any portion of Victoria be a quarantine district from which or into which no sheep may travel without the permission of an Inspector (b) Sheep infected with catarrh or influenza must not be depastured within a quarter of a mile of a road or on land not the owner's or driven along any road	..
(xv) Treatment of Infected Sheep	Sheep infected with scab, influenza, or catarrh which are not ordered to be destroyed must be dressed; but no sheep may be dressed without having been examined by an Inspector	An owner of infected sheep must dip them within 14 days, and, if he fails to do so, an Inspector may apply to a Court of Petty Sessions, and, on the conviction of the owner, may seize and cleanse such sheep	..

RELATING TO DISEASES IN STOCK—*continued.*

South Australia.	Western Australia.	Tasmania.
TO SHEEP ONLY—*continued.*		
(*a*) Sheep may not be introduced by sea without a certificate of cleanness from an Inspector or veterinary surgeon at the port of shipment (*b*) Sheep from a clean State may be landed without quarantine or dipping (*c*) Sheep introduced without a certificate of cleanness must be quarantined for not less than 60 days and dipped and disinfected	(*a*) The owner of imported sheep must report to the Resident Magistrate or an Inspector, and not remove them until they are declared clean, nor until they have been dipped (*b*) Sheep from Queensland may be landed at Fremantle only, and must be quarantined for 14 days	(*a*) No sheep arriving at any port may be landed until inspected by an Inspector, and if found infected with catarrh must be destroyed (*b*) Sheep may be landed at certain ports only, and must be accompanied by a declaration of health from the owner and a certificate of cleanness from an Inspector at the port of shipment, and must have a landing permit; if carrying lice or ticks, they must be dipped
..	The Governor may appoint places on the inland boundaries of districts at which all sheep must be introduced	..
..	An owner of infected sheep must (*a*) give notice to owners of adjoining runs within 48 hours, and to an Inspector and Resident Magistrate (if any) within a specified time according to distance; (*b*) post up a notice on his run; (*c*) brand infected sheep with S	An owner of sheep affected with ticks or lice must forthwith notify the Chief Inspector
..	Infected sheep not depasturing within secure enclosures must be shepherded by day and folded by night	..
Infected sheep must be kept in quarantine until clean	Any run on which are infected sheep must be quarantined until clean	
Sheep affected with tick or lice must be dipped after being shorn	Infected sheep must be dipped within 4 weeks from the service of notice from an Inspector, or forthwith if affected with ticks or lice	Sheep carrying ticks or lice must be dipped within 14 days, but unshorn sheep need not be dipped between the 1st May and the 30th November

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

B.—ACTS AND REGULATIONS RELATING

Particulars.	New South Wales.	Victoria.	Queensland.
(xvi) Destruction of Infected Sheep	(a) If an Inspector decides that sheep (i) are affected with scab, or (ii) have within the preceding three months been so affected, or (iii) have during that period formed part of an infected flock, he must make a memorandum of their value, and notify the owner to destroy such sheep (b) An owner may appeal to the Board against the decision of an Inspector	(a) An owner may elect to have sheep to which an order for cleansing relates destroyed (b) Sheep still infected after 15 months may be destroyed by order of a Court of Petty Sessions (c) An owner may appeal to the Board of Advice against an order for the destruction of sheep	..
(xvii) Procedure with regard to Straying Sheep	Any owner or proprietor may seize and destroy any infected sheep (not exceeding 200 in number) straying off their own run, and must give notice thereof to the nearest Inspector within 24 hours	Infected stray sheep may be destroyed by an Inspector or by the owner or occupier of the land on which it is straying, who must notify an Inspector of such destruction	..
(xviii) Compensation for Destruction of Sheep	An owner of sheep which are destroyed as being infected with scab is to be compensated by the Pastures Protection Fund to the extent of two-thirds of their value, less any amount received from the sale of products from boiling down	..	..
(xix) Provisions with regard to Travelling Sheep	(a) Travelling sheep starting from an infected district or one adjoining, or a district adjoining an infected State, must obtain a certificate of cleanness from an Inspector (b) Travelling sheep must be branded with the letter T (c) Drover to give not less than 12 nor more than 48 hours' notice to owners of runs on his route	(a) Notice of travelling sheep, if 500 or over, must be given to the occupier of a run or to the commoner of a common through which they will pass not less than 12 nor more than 24 hours previously (b) Infected sheep may not travel on any road or upon any land not in the actual occupation of the owner (c) An Inspector may destroy any infected flock of travelling sheep	Travelling sheep must be branded with the letter T
(xx) Detention of Travelling Sheep	An owner of a run through which travelling sheep pass may detain such sheep on suspicion of their being infected until they have been examined by an Inspector	(a) An owner of a run may examine sheep driven through his run and detain suspected ones pending an examination by an Inspector, and if they are infected they are to be destroyed (b) Any Inspector may detain and examine travelling sheep	..
(xxi) Compulsory Dipping of Sheep		Every sheep-owner must dip all his sheep immediately after shearing as well as his lambs; but if it is not possible to do so immediately, they must be kept in a secure paddock and dipped within 60 days	..

RELATING TO DISEASES IN STOCK—*continued.*

TO SHEEP ONLY—*continued.*

South Australia.	Western Australia.	Tasmania.
..	If infected sheep are not dipped in accordance with the instructions of an Inspector, the owner is guilty of an offence, and Justices may order the sheep to be destroyed	..
..	Any person may seize and destroy stray infected sheep, and any Inspector may seize and destroy stray suspected sheep	(*a*) An occupier of land upon which diseased or infected stray sheep are found may detain them for examination by an Inspector (*b*) Any Inspector may detain such sheep found on a street, road, or reserve (*c*) The Chief Inspector may order such sheep to be dipped, and, if no owner is found within 14 days, to be destroyed or sold
.	No compensation is payable for any sheep destroyed under the authority of the *Scab Act*	..
Sheep infected with ticks or lice must not be removed without a permit, and must not stray on public roads, etc.	(*a*) Travelling sheep from an infected area must have a permit from an Inspector, and give the owners of runs through which they pass not less than 12 nor more than 48 hours' notice (*b*) Sheep passing out of an infected into a clean district to be branded with a V	..
..	An owner of a run may detain and examine travelling sheep, and if found infected may detain them for examination by an Inspector, who may destroy any infected sheep	An occupier of land may examine travelling sheep passing through his land, and, if diseased, detain them for examination by an Inspector pending the decision of the Chief Inspector, who may order them to be returned whence they came or to proceed to their destination
Every sheep-owner in certain districts must dip his sheep during the period from 1st September to 31st January in each year, and in other proclaimed districts during the period notified by the Commissioner for Crown Lands	(*a*) Sheep in the South-West district must be dipped after shearing before 30th April if south of the Eastern railway and before 31st January if north thereof (*b*) Every sheep-owner must dip his sheep whenever ordered to do so by an Inspector	(*a*) All sheep must be dipped immediately after shearing unless the owner holds a clean certificate (*b*) A sheep-owner not in a clean district must dip his sheep twice after shearing at intervals of not less than 10 nor more than 14 days

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

C.—ACTS AND REGULATIONS RELATING

Particulars.	New South Wales.	Victoria.	Queensland.
(i) Acts in Force ..	Dairies Supervision Act 1901 Pure Food Act 1908	Dairy Supervision Act 1915	Dairy Produce Act 1920 ..
(ii) Notifiable Diseases	Actinomycosis, anthrax, cancer, hæmaturia (redwater), pleuro-pneumonia contagiosa, puerperal fever or puerperal septic conditions, tuberculosis, inflammations, eruptions and abscesses of the udder	Anthrax, blackleg or symptomatic anthrax, contagious mammitis, contagious pleuro-pneumonia, contagious abortion, swine fever, tuberculosis, variola vaccinia, and any proclaimed disease	Abscesses, actinomycosis, anthrax, contagious abortion, blackleg, foot and mouth disease, malignant catarrh, malignant growths (cancer), mammitis (udder and teat inflammation), pleuro-pneumonia contagiosa, rinderpest, Texas or tick fever, tuberculosis, variola
(iii) Procedure when Disease is discovered or suspected	(a) A diseased animal must be separated from the milking herd (b) Animals with tuberculosis must be destroyed (c) The milk of a diseased or suspected cow must not (i) leave the premises, (ii) be used for the food of man whether cooked or not, (iii) be used to feed other animals unless it has been thoroughly boiled	(a) The owner must immediately notify a supervisor or a member of the police force, and must isolate the diseased animal (b) Any supervisor may prohibit for not exceeding two weeks the use of any cow if he is of opinion that the produce thereof would be deleterious to health, may temporarily brand such cow, and must notify the authority which confirms or cancels such prohibition, and may reduce or extend the period thereof. An owner may appeal to the Minister against a decision of the authority	(a) The owner must forthwith notify the Under-Secretary of the Department of Agriculture and Stock (b) An Inspector may order diseased stock to be isolated forthwith for examination, and on receiving a certificate from veterinary surgeon the Minister may order such stock to be destroyed (c) If a *post-mortem* examination by a State veterinary surgeon shews such destroyed stock to be free from disease, the full market value is to be paid as compensation

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
(i) Acts in Force ..	Apiaries Act 1916, 1917 ..	Bees Act 1915	(No Legislation) ..
(ii) Definitions ..	*Disease* means foul-brood, bee-moths, and any other diseases or pests proclaimed by the Governor *Frame-hive.*—A hive containing movable frames in which the combs are built and which may be readily removed from the hive for examination	*Diseases.* — Foul - brood (Bacillus alvei), brood pest (Bacillus larvæ), sour brood (Streptococcus apis), the larger bee-moth (Galleria mellonella), the lesser bee-moth (Achrœca grisella) *Frame-hive.*—A hive the combs of which are in frames and capable of easy removal for the purpose of inspection	..
(iii) Provisions with respect to keeping, removing Bees, etc.	(a) No bee-keeper may keep bees, other than native or indigenous, in any hive other than a frame-hive under penalty not exceeding £20 (b) No bee-keeper may sell or otherwise than in a prescribed manner dispose of any bees or appliances from an apiary which is infected, under penalty not exceeding £20	(a) The Governor may declare any area in which any disease affecting bees exists to be a "proclaimed area," and may prohibit the bringing into or removal out of such area of bees, comb, or hives likely to spread disease (10 Boroughs and 24 Shires have been declared "proclaimed areas") (b) No bee-keeper may keep bees in any other kind of bee-hive than such as is prescribed	..

RELATING TO DISEASES IN STOCK—*continued.*

South Australia.	Western Australia.	Tasmania.
TO DAIRY CATTLE ONLY.		
..	..	Dairy Produce Act 1910, 1919
..	.	Abscesses, anthrax, cancer, mammitis (udder and teat inflammation), pleuro-pneumonia, tuberculosis, and any proclaimed disease of an infectious or contagious nature likely to contaminate dairy produce
..	..	The owner must notify the nearest supervisor forthwith, keep diseased stock separate from other stock, and not mix the produce of diseased stock with that of other stock, nor sell such produce for the food of man or any animal

RELATING TO DISEASES IN BEES.

South Australia.	Western Australia.	Tasmania.
Ligurian Bee Act 1885 .. Foul-brood among Bees Act 1887	Contagious Diseases (Bees) Act 1899	(No Legislation)
Disease.—Foul-brood ..	*Diseases.*—Foul-brood or other contagious diseases among bees	..
No person may have, breed, keep, or import into Kangaroo Island any bees other than pure Ligurian or Italian, under penalty not exceeding £10 for the first offence, and not exceeding £50 for a subsequent offence	..	

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
(iv) Appointment of Inspectors	The Governor may appoint Inspectors and other officers	The Governor may appoint Inspectors under the *Public Service Act*	..
(v) Powers of Entry of Inspectors and Authorized Persons	An Inspector may enter and inspect any premises where bees are kept and inspect bees, hives, etc.	An Inspector may enter and inspect any premises where bees are kept and inspect bees, hives, etc.	..
(vi) Registration of Bee-keepers	A bee-keeper must, unless he was already registered on the 1st November, 1917, apply to the Under-Secretary of Agriculture to have his apiary registered, and in case of removal of such apiary give notice thereof within 14 days	..	..
(vii) Notification of Disease	A beekeeper immediately upon becoming aware of the presence of disease must notify the Minister for Agriculture or an Inspector	..	..
(viii) Eradication of Disease	A beekeeper must immediately take steps to cure or eradicate diseases, and, on order from an Inspector, must cleanse and disinfect all articles liable to spread disease	A beekeeper, when ordered by an Inspector, must cleanse and disinfect hives, appliances, etc.	..
(ix) Destruction of diseased Bees, etc.	(*a*) On receipt of a certificate from an Inspector that any bees are a source of danger to other bees, the Minister, may order a beekeeper to destroy them (*b*) An Inspector may destroy materials up to the value of £5, and, with the Minister's approval, over £5 if they cannot be disinfected	(*a*) On receipt of a certificate from an Inspector that any bees are a source of danger to other bees, the Minister may order a beekeeper to destroy them (*b*) An Inspector may destroy materials up to the value of £5, and, with the Minister's approval, over £5 if they cannot be disinfected	..
(x) Failure on part of Owner to eradicate or destroy diseased Bees.	If a beekeeper fails to destroy bees within seven days when ordered, an Inspector may do so at his expense	If a beekeeper fails to destroy bees within seven days when ordered, an Inspector may do so at his expense	..
(xi) Compensation for the Destruction of diseased Bees, etc.	No person is entitled to any compensation in consequence of any measures taken for the eradication of disease or in respect of any damage, unless the same was occasioned wilfully or without necessity	No person is entitled to any compensation in consequence of any measures taken for the eradication of disease or in respect of any damage, unless the same was occasioned wilfully or without necessity	..

RELATING TO DISEASES IN BEES—*continued.*

South Australia.	Western Australia.	Tasmania.
..	The Governor may appoint bee experts to carry out the duties necessary for the administration of the Act	..
(*a*) A police officer or person authorized by a Justice may enter any house, ship, etc., on Kangaroo Island and search for bees other than Ligurian or Italian (*b*) An Inspector or person authorized by the Commissioner of Crown Lands may enter any land or premises where bees are kept and inspect all bee-hives and materials used for bee-keeping	An Inspector or person authorized by the Department of Agriculture may enter upon any land or premises where bees are kept and inspect all bee-hives and materials used for bee-keeping thereon	..
..	..	..
..	Any person who has in his possession or under his care any colony, hive, or swarm of bees affected with foul-brood or other contagious disease must forthwith report to the Department of Agriculture	..
Any person having in his possession any colony, hive, or swarm of bees affected with foul-brood must forthwith destroy all comb and disinfect any box or hive or material used in connexion therewith	A beekeeper must take such steps for the eradication of disease as the Department of Agriculture may direct	..
..	..	..
Any person after one week's notice knowingly failing to eradicate disease or knowingly having on his premises any comb infected with foul-brood is liable to a penalty of not less than 5s. and not more than £10	Any person after one week's notice knowingly failing to eradicate disease or knowingly having in his possession any comb affected with disease is liable to a penalty of not less than 5s. and not more than £5	..

IMPORTATION OF PLANTS FROM FOREIGN COUNTRIES.

1. **General.**—The importation of plants from foreign countries is under the control of the Commonwealth, and the following are the chief provisions of the Acts and Regulations governing the same.

2. **Acts in Force.**—Quarantine Act 1908, 1912.

3. **Diseases in Plants.**—Any disease or pest declared by the Governor-General by proclamation to be a disease affecting plants.

4. **Prohibition of Importation, etc.**—The Governor-General may—

(*a*) declare any ports to be ports where imported plants may be landed,
(*b*) appoint quarantine stations,
(*c*) prohibit the introduction of any pest,
(*d*) prohibit the introduction of any plants,
(*e*) prohibit the removal of any plants from any part of the Commonwealth in which disease exists,
(*f*) declare any part of the Commonwealth to be a quarantine area.
(*g*) declare any plants to be subject to quarantine.

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE RELATING TO

Particulars.	New South Wales.	Victoria.	Queensland.
(i) Acts in Force ..	Vine and Vegetation Diseases and Fruit Pests Act 1912	Vegetation and Vine Diseases Act 1915	Diseases in Plants Act 1916
(ii) Definitions ..	(*a*) *Disease.*—Any disease affecting plants proclaimed by the Governor, whether or not caused by insects or fungus (*b*) *Fruit Pest.* — Codlin moth (Carpocapsa pomonella), and any species of Fruit Fly (Tephritidœ) (*c*) *Fungus.*—Any fungus or vegetable parasite proclaimed by the Governor (*d*) *Insect.*—Any insect proclaimed by the Governor	(*a*) *Disease.*—Any disease affecting trees, plants, or vegetables, proclaimed by the Governor, whether or not caused by insects or fungus (*b*) *Fungus.*—Any fungus or vegetable parasite proclaimed by the Governor (*c*) *Insect.*—Any insect proclaimed by the Governor	(*a*) *Disease.* — Any disease affecting trees, plants, fruit, or vegetables caused by or consisting of the presence of any insect or fungus and any other such disease proclaimed by the Governor (a large number of diseases have been so proclaimed) (*b*) *Fungus.*—Any fungus or vegetable parasite proclaimed by the Governor (*c*) *Insect.*—Any insect proclaimed by the Governor (*d*) *Pest.*—Any plant, insect, or fungus proclaimed by the Governor in a fruit district
(iii) Prohibition of Importation of Plants, etc. (For Commonwealth Act, see text)	(*a*) The Governor may prohibit the introduction into New South Wales, or into any portion thereof specified in the proclamation, of any plant likely to introduce or spread any disease or insect (*b*) No person may introduce any insect or fungus, except for scientific purposes with the consent of the Minister	(*a*) The Governor may prohibit the introduction into Victoria of any tree, plant or vegetable likely to introduce any disease or insect (*b*) No person may introduce any insect or fungus, except for scientific purposes with the consent of the Minister	(*a*) The Governor may prohibit the introduction into Queensland from another State of any tree, plant or vegetable likely to introduce any insect, fungus or disease (*b*) No person may introduce into Queensland any insect, fungus, tree, plant or vegetable contrary to the Act
(iv) Penalty for introducing Diseased Plants, etc.	Not exceeding £20 ..	Not exceeding £20 ..	Not exceeding £20 ..

5. **Provisions for Landing imported Plants.**—The following provisions are to be observed when plants are imported from other countries :—

(*a*) plants may be landed only at proclaimed ports,
(*b*) no imported plants may be landed without a permit from a quarantine officer,
(*c*) all imported plants must be carefully inspected by a quarantine officer,
(*d*) notice of importation of plants must be given to a quarantine officer.

6. **Quarantining imported Plants.**—The quarantining of imported plants is subject to the following provisions :—

(*a*) if imported plants are free from disease a quarantine officer may authorize their delivery to the importer
(*b*) if the plants are not free from disease they are ordered into quarantine.
(*c*) plants in quarantine are to be treated.

7. **Destruction of imported Plants.**—If a quarantine officer certifies that any plants ordered into quarantine are diseased and a source of danger, the Minister may order them to be destroyed.

VEGETATION (EXCLUSIVE OF VINE) DISEASES.

South Australia.	Western Australia.	Tasmania.
Vine, Fruit, and Vegetable Protection Act 1885, 1910	Plant Diseases Act 1914 ..	Codlin Moth Act 1888, 1891, 1900, 1912 Vegetation Diseases Act 1898 Potato Diseases Act 1909 (2), 1910, 1914 San José Scale Act 1915
(*a*) *Disease.* — Any disease caused by insects, or any other disease affecting trees, plants or vegetables proclaimed by the Governor (*b*) *Insect.*—Any of the insects Phylloxera vastatrix, Carpocapsa pomonella (Codlin moth), Aspidiotus aurantii (Round Orange Scale Insect), Doryphora decemlineata (Colorado Beetle), or any other insect proclaimed by the Governor (*c*) The following diseases have been proclaimed:—Tylenchus spp. (Eelworms), Phytophthora infestans (Irish potato blight), Fusarium oxysporum, (Dry rot Fungus), Oospora scabies (Potato scab), Macrosporium solani (*Early blight or leaf curl of* potato). Bacillus solanacearum (Bacteriosis of Potato), also the insect Lita solanella (Potato moth)	*Disease.*—Any parasite, whether of vegetable or animal nature, which commonly attacks or is found on plants	(*a*) *Disease.* — Any disease affecting plants, whether or not caused by or consisting of the presence of insects or fungus proclaimed by the Governor (*b*) *Fungus.*—Leaf curl of Peach (Exoascus deformans), Potato bacteriosis (Bacillus solanacearum), Wet rot (Bacillus spp.), Potato dry rot (Fusarium oxysporum), Potato scab (Oospora scabies), Canker of the apple tree (Nectria ditissima), Irish potato blight (Phytophthora infestans), Mildew and blight (Peronosporeæ spp.) (*c*) *Insect.*—Codlin moth (Carpocapsa pomonella), Tomato fly (Lonchea splendida), Fruit flies, etc. (Ceratitis, Tephritis, and *Limnophora spp.*). *Vine louse* (Phylloxera vastatrix), Pear tree slug (Selandria cerasi), San José scale (Aspidiotus perniciosus), Aphis, plant lice (Aphidæ spp.), Apple and orange moths (Cacæcia spp.), Tomato moth (Heliothis armigera), Potato moth (Lita solanella), Eelworm (Anguillulidæ spp.), Mussel scale (Mytilaspis pomorum) (*d*) *Potato* includes tomato
The Governor may prohibit the introduction into the State of— **(*a*) Any insect or disease** **(*b*) Any tree, plant or other thing likely to introduce any disease or insect**	**The Governor may prohibit the bringing into the State of—** **(*a*) Any specified kind of plant, fruit or thing likely to introduce disease** **(*b*) Any coverings in which such have been packed or with which they have come in contact** **(*c*) Anything which is infected with any specified disease**	**(*a*) The Governor may prohibit the introduction of any plant likely to introduce any disease or insect** **(*b*) No person may introduce any fungus or insect, except for scientific purposes with the consent of the Minister**
Not less than £5 nor more than £100 or imprisonment for not exceeding six months	**Not less than £5 nor more than £100**	**Not exceeding £10**

CONSPECTUS OF ACTS AND REGULATIONS RELATING TO

Particulars.	New South Wales.	Victoria.	Queensland.
(v) Treatment of Diseased Plants, etc., introduced in contravention of the Act	Any insect, fungus, or plant introduced contrary to the Act or a proclamation, and any diseased plant introduced and any package containing same may be forthwith seized by an authorized person and destroyed or otherwise dealt with	Any insect, fungus, or plant, introduced contrary to the Act or a proclamation, and any diseased plant introduced, and any package containing same may be forthwith seized by an authorized person and destroyed or otherwise dealt with	Any insect or fungus, diseased tree or plant or package containing same introduced into Queensland contrary to the Act, and every infected container may be seized and dealt with by destruction or otherwise as the Minister or an Inspector may direct
(vi) Conditions under which Trees, Fruit, etc., may be introduced	Fruit, vegetables and plants may be imported from the Australian States only under the following conditions :— (a) the packages containing them must be new, except for pumpkins, peas, beans and similar vegetables; (b) their arrival must be notified to an Inspector at the place of entry and a permit for removal obtained from him ; (c) every package must be branded ; (d) the inspection fees must be paid	No tree, plant, or vegetable may be imported from the Australian States unless— (a) the package is new ; (b) each package is branded ; (c) the arrival is notified to an Inspector ; (d) such tree, etc., has been examined by an Inspector and a permit for removal obtained (e) such tree, etc., has been imported only through certain ports or border towns ; (f) the prescribed inspection fees have been paid	A. Imported trees and plants, other than fruit and potatoes, must— (a) be received only at proclaimed places of entry ; (b) be marked with the name of the place where grown ; (c) be received only when their arrival is notified within 24 hours ; (d) be detained for inspection ; (e) be ordered into quarantine and— (i) if found to be subject to a new disease, to be destroyed ; (ii) if diseased otherwise to be disinfected and detained fourteen days, and if not then clean, to be destroyed ; (f) if accompanied by certificate that they have been fumigated, they may be admitted on inspection only B. Packages must be new or accompanied by a certificate that they were cleansed
(vii) Treatment of imported Trees, Fruit, etc.	Where imported fruit which has been condemned contains fruit free from disease and slightly diseased fruit, it may be sorted into— (a) fruit free from disease which may be repacked in clean cases (b) Slightly diseased fruit, which may be disposed of to fruit preservers (c) unfit fruit, which must be destroyed	Any imported fruit, vegetables, etc., of which a part only is diseased may be sorted subject to the following conditions :— (a) the fruit, etc., must be removed as directed by an Inspector ; (b) it must be sorted or cleaned and repacked in clean packages (c) packages which contained diseased fruit must be disinfected or destroyed (d) diseased fruit must be reshipped to the country of origin or destroyed	Where imported fruit which has been condemned contains fruit free from disease and slightly diseased fruit, it may be sorted into— (a) fruit free from disease which may be repacked in clean cases (b) slightly diseased fruit, which may be disposed of to fruit preservers ; (c) unfit fruit, which must be destroyed
(viii) Conditions under which Potatoes may be imported	Potatoes imported from other States must— (a) be packed in new bags or cases, branded and marked " Potatoes " ; (b) be inspected by an Inspector at the port of export and certified by him as free from Irish Blight ; (c) be again inspected at the place of entry, and if free from Irish Blight or other proclaimed disease, be removed on payment of the inspection fees	The conditions are the same as for other vegetables (see (vi)), but potatoes and tomatoes must be accompanied by a certificate from an Inspector of the country of origin that they are free from disease	Potatoes must be accompanied by a certificate from an Inspector of the country of origin that they are free from any injurious insect or plant disease to which potatoes are subject

VEGETATION (EXCLUSIVE OF VINE) DISEASES—*continued.*

South Australia.	Western Australia.	Tasmania.
Any tree, plant, insect or other thing introduced in contravention of a proclamation or regulation, together with any package containing same, may be seized by an authorized person and destroyed by fire or otherwise without compensation to the owner	Any plant, fruit, covering or other thing introduced contrary to any proclamation, may be seized by an Inspector and disinfected, destroyed or otherwise disposed of	Any insect, fungus or plant introduced contrary to a proclamation, or any diseased plant imported and any package containing such may be seized by an Inspector and destroyed or otherwise dealt with. The Director of Agriculture may destroy any tree, etc., infected with San José Scale
A. Trees, plants and fruits may only be introduced from other States on the following condions :— (*a*) they may be introduced only at places where there is an Inspector (*b*) they may not be landed without the permission of an inspector ; (*c*) packages must be new and branded ; (*d*) receptacles must be disinfected and accompanied by a certificate of disinfection B. Trees and plants from a State infected with Phylloxera must be accompanied by sworn declaration that they came from a clean nursery, and were grown not less than 50 yards from any grape vine	. .	(*a*) Imported plants from the Australian States must be accompanied by a certificate that they have been fumigated with hydrocyanic gas for one hour, or have been immersed in or sprayed with Bordeaux mixture ; (*b*) Imported fruits, other than citrus fruits, cucumbers, nectarines and peaches must be accompanied by a certificate that they have been examined and found fit for export and that the cases are new (*c*) All packages must be branded ; (*d*) Notice of landing must be given to an Inspector
Inspector examines all imported trees and plants and may sort, disinfect, or destroy them	. .	(*a*) Fruit affected with any disease other than fruit fly must be treated as follows :— (i) removed to a quarantine station and sorted (ii) fruit which is not diseased may be repacked in clean cases (iii) diseased fruit must be reshipped or destroyed or manufactured into jam ; (*b*) Fruit suspected of being affected with fruit fly must be quarantined for 14 days for citrus fruits, and 7 days for others, and if so affected reshipped or manufactured into jam forthwith
Potatoes must be accompanied by a certificate from an Inspector of the State of origin that they are free from Irish Blight, fungus or other potato disease or insect		. .

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE RELATING TO

Particulars.	New South Wales.	Victoria.	Queensland.
(ix) Treatment of imported potatoes	Diseased potatoes must be condemned and reshipped at the consignee's expense, provided that potatoes only slightly affected may be re-sorted and the diseased portion reshipped or used for ship's stores	Same as for fruit (see vii) ..	..
(x) Districts, Boards, etc.	..	..	The Governor may declare any District to be a Fruit District (nine Districts have been proclaimed)
(xi) Appointment of Inspectors	The Minister may appoint Inspectors	The Governor may, subject to the *Public Service Act*, appoint Inspectors	The Governor may appoint qualified persons to be Inspectors
(xii) Powers of entry of Inspectors and other Authorized Persons	(*a*) An Inspector may enter upon any land or building and search for fruit pests and plants and packages likely to convey any fruit pest; (*b*) Any person authorized by the Minister may at any time enter upon any ship, vessel or place and search for insects and fungi and diseased plants and packages likely to convey disease	(*a*) If proof be given to the Minister that trees, plants or vegetables suspected to be diseased are upon any land, an Inspector or authorized person may enter upon such land at any time to search for diseased trees, plants, or vegetables; (*b*) An Inspector may, at all times when any tree, plant or vegetable is exposed for sale inspect them and may direct the owner to take steps to eradicate disease, but may not without the consent of the owner or authority of the Minister direct the destruction thereof	(*a*) An Inspector may at all reasonable times enter upon any land upon which any diseased tree, plant or vegetable or pest is or is suspected to be for the purpose of searching for and examining them; (*b*) An inspector may seize and detain any tree, plant, or vegetable suspected to be diseased, which is being introduced into Queensland or removed from one part of the State to another, together with any packages containing same, and remove and examine same
(xiii) Notification of Occurrence of Disease	..	..	..
(xiv) Procedure when Disease is discovered	(*a*) An Inspector must report to the Minister, who notifies the owner or occupier to take such measures to eradicate the disease as are specified in the notice, but the owner or occupier may appeal to two Justices or a Stipendiary Magistrate against such notice; (*b*) If the Minister considers that destruction is a matter of *necessity and extreme urgency* he may make an order therefor; (*c*) Fruit trees, which in the opinion of an Inspector are likely to convey any fruit pest, must, if ordered by the Minister, be destroyed by the occupier or owner	(*a*) The Minister or an authorized person, who finds diseased trees, plants or vegetables may notify the occupier or owner to eradicate all disease from and destroy all insects and fungi on all trees, plants or vegetables growing on his land; (*b*) The Minister may order the destruction of any tree, plant *or vegetable*	(*a*) An Inspector, finding diseased trees, plants or vegetables on any land may order the occupier, or failing him the owner, to take all necessary measures to eradicate the disease; (*b*) If a disease can be eradicated only by the destruction of the trees, etc., the Inspector reports to the Minister, who *may order them to be* destroyed; (*c*) An Inspector finding any pests must order occupier to destroy such pests

VEGETATION (EXCLUSIVE OF VINE) DISEASES—*continued*.

South Australia.	Western Australia.	Tasmania.
. .	. .	Imported potatoes must be removed to a quarantine station and sorted into— (*a*) not diseased potatoes, which may be repacked into clean receptacle ; (*b*) diseased potatoes which must be reshipped or destroyed or denaturated (in Hobart destroyed only)
. .	. .	(*a*) Under the *Codlin Moth Act* the Governor may declare Fruit Districts under the control of Municipal Councils which may levy Codlin Moth rates not exceeding 6s. per acre for fruit-bearing, and 3s. for non-fruit-bearing orchards ; (*g*) Under the *Potato Diseases Act* the Governor may establish Potato Districts, every city and ward of a Municipality being a District. Maximum rate 2s. per acre
The Minister may appoint such persons as he may deem fit to be Inspectors	The Governor may, subject to the *Public Service Act*, appoint Inspectors and temporary Inspectors	The Governor may appoint Inspectors
An Inspector may at all times enter upon any land and buildings or any vessel, in which any tree or plant is or is suspected to be diseased and may examine and remove such tree or plant for the purpose of ascertaining if the same is injuriously affected by insect or disease	(*a*) An Inspector may at any time enter any orchard, land or premises used for the storage of fruit, or conveyance and examine for the purpose of ascertaining whether they are infected ; (*b*) An Inspector may at any time board any vessel and search same and examine plants, fruit, coverings, goods and other things thereon	(*a*) Under the *Codlin Moth Act*, an Inspector may at any reasonable time enter any orchard for the purpose of inspecting the trees and verifying the acreage ; (*b*) Under the *Vegetation Diseases Act* an Inspector may any time enter upon any vessel or place and search for insects and fungi and diseased plants and packages likely to convey disease ; (*c*) An Inspector under the *Potato Diseases Act* may at any time enter and examine any land or building containing potatoes and search for disease
. .	The occupier of an orchard in which disease appears must give notice within 24 hours to an Inspector or the Under-Secretary for Agriculture under a penalty of not less than £5, nor more than £100	(*a*) The occupier of an orchard in which no codlin moth or infected tree has previously been found must notify an Inspector or Board under penalty not exceeding £10 ; (*b*) An occupier of land upon which potato disease appears must notify an Inspector or the Minister under penalty not exceeding £5
Whenever the Inspector is of opinion that a tree or plant is affected by any insect or disease, he must notify the occupier to take the steps specified in the notice for the destruction of the insect or eradication of the disease, and must at the same time report to the Minister	(*a*) Whenever an Inspector finds that disease exists in any land, orchards or premises, or that any plant, covering, etc., is infected, he may require the owner or occupier of the land, etc., or the owner of the infected article to eradicate such disease and prevent it from spreading ; (*b*) An Inspector may destroy any infected plants, fruit or coverings	(*a*) A Codlin Moth Board may require the occupier of an orchard to cut down and burn decayed trees ; (*b*) An occupier in a Codlin Moth District in which spraying is compulsory, must, if required, bandage his trees ; (*c*) An occupier of potato land must do whatever is necessary to eradicate disease and must spray at least twice in each season ; (*d*) An inspector may destroy diseased potatoes ; (*e*) An owner or occupier of an orchard infected with San José Scale must eradicate it and prevent it from spreading

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE RELATING TO

Particulars.	New South Wales.	Victoria.	Queensland.
(xv) Procedure when Owner or Occupier fails to take steps to eradicate Disease	An Inspector may enter the land or building and do all the acts mentioned in the notice at occupier's or owner's expense	After 21 days an authorized person may summon the occupier or owner before a Court of Petty Sessions, which may make an order authorizing any person to enter upon the land and eradicate diseases and destroy all insects and fungi on all trees, plants and vegetables thereon at occupiers' or owner's expense	The owner or occupier is summoned before a Court of Petty Sessions, which may authorize any Inspector to enter the land and take steps for the eradication of disease or destruction of trees, plants, vegetables or pests at the owner's or occupier's expense
(xvi) Penalty for Failure or Neglect to eradicate Disease	Not exceeding £20 ..	Not exceeding £20 ..	Not exceeding £20 ..
(xvii) Compensation for Destruction of Plants, etc.	No person is entitled to receive compensation for the treatment or destruction of fruit, etc., unless occasioned wilfully, negligently or without necessity	No person is entitled to receive compensation for the treatment or destruction of fruit, etc., unless occasioned wilfully, negligently or without necessity	Compensation, as the owner and the Director of Fruit Culture may agree upon is payable where any tree, plant or vegetable not diseased is destroyed under the direction of the Minister for preventing the spread of any virulent disease
(xviii) Isolation of diseased Trees, etc.	(*a*) The Governor may order that certain trees, plants or vegetables must not be removed from any nursery, orchard or place ; (*b*) The Governor may prohibit the bringing into one part of the State from another part of any plant likely to introduce or spread any disease or insect	(*a*) The Governor may prohibit the bringing into any portion of Victoria from any other portion of any plant or vegetable likely to spread disease ; (*b*) No potatoes or onions may be removed from one District within the State to another until examined by an Inspector and pronounced free of disease	The Governor may absolutely prohibit or permit as prescribed the removal of any plant or vegetable from any nursery, orchard or place
(xix) Treatment of Diseases, etc.	*Codlin Moth.*—(*a*) All apple, pear and quince trees to be sprayed not less than three times with arsenate of lead ; (*b*) all infected fruit to be collected and destroyed at least once every two days *Fruit Fly.*—All infected fruit to be collected and destroyed at least once every 24 hours	..	*Codlin Moth.*—(*a*) All apple, pear, and quince trees to be sprayed three times and bandaged, and bandages inspected every seven days ; (*b*) infected apples, pears and quinces to be collected and destroyed at least once every four days. (Applies only to Stanthorpe District) *Fruit Fly.*—All fallen fruit to be collected every three days and infected fruit to be boiled or burned
(xx) Miscellaneous ..	The Minister may give a certificate that a nursery is free from fruit pest or other disease	Any person selling or attempting to sell or exposing for sale any diseased tree, plant or vegetable is liable to a penalty not exceeding £10	(*a*) Every occupier or owner of an orchard or nursery must register same annually under penalty of for first offence not less than £1 nor more than £5, and for subsequent offences, not less than £2 nor more than £10 ; (*b*) Registered nurseries must be inspected at least twice a year ; (*c*) Potatoes for export must be accompanied by a certificate that they are free from disease

VEGETATION (EXCLUSIVE OF VINE) DISEASES—*continued.*

South Australia.	Western Australia.	Tasmania.
If a notice is not complied with in the time specified therein, the Minister may direct any Inspector to take steps to destroy or eradicate the insect or disease, at the occupier's or owner's expense, including the destruction of trees and plants	In case of default in compliance with any requisition any Inspector may do all the things required of the owner or occupier at the expense of the person guilty of default	The Governor or a Board may authorize an Inspector to enter an orchard and perform all such acts as the Act or Regulations direct at the expense of the occupier
Not exceeding £50 or imprisonment for three months	Not less than £5 nor more than £100	Not less than 10s. nor more than £5 (*Codlin Moth Act*) Not exceeding £5 (*Potato Disease* and *San José Scale Acts*)
No compensation is allowed in consequence of any measures taken for the eradication of any insect or disease or in respect of any loss or injury resulting therefrom	No compensation is allowed in consequence of any measures taken for the eradication of any insect or disease or in respect of any loss or injury resulting therefrom	..
The Governor may prohibit (*a*) the removal within the State of any disease, or insect, or tree, plant, or other thing likely to spread any disease or insect; (*b*) the growing or planting of any tree or plant in any area defined in a proclamation	(*a*) The Minister may declare an orchard to be infected, together with an area around it, and no plants or fruit may be removed therefrom without permission of an Inspector; (*b*) The Governor may prohibit the bringing into any portion of the State from another portion thereof of (i) any specified kind of fruit or plant likely to introduce disease, (ii) any covering in which such fruit or plant has been in contact or any infected thing	(*a*) No person may carry infected fruit or containers from one part of the State to another unless previously cleansed; (*b*) The Governor may (i) prohibit the removal within the State of any potatoes; (ii) quarantine any building, land, or place in which diseased potatoes have been found. (*c*) No potatoes may be planted in an infected district within half-a-mile of a clean district; (*d*) No person may remove trees, etc., infected with San José scale without the authority of the Director of Agriculture
Orange Red Scale.—Fumigation with hydrocyanic acid gas *Codlin Moth.*—(*a*) Scraping off dead bark, (*b*) bandaging and examining bandages from time to time, (*c*) treating affected fruit as directed, (*d*) spraying as Inspector may prescribe	..	*Fumigation* with hydrocyanic gas for the destruction of coccids, aphis, etc. *Immersion* in a solution of formaldehyde for potatoes and packages *Spraying* with or immersion in Bordeaux mixture for fungus diseases and packages *Boiling* in water for not less than one hour for codlin moth
The Minister may hear and determine any appeal from the decision or direction of an Inspector	(*a*) Penalty for selling or offering or exposing for sale diseased or infected fruit, not less than £5 nor more than £100; (*b*) The Governor may appoint specified ports of entry; (*c*) If an orchard is abandoned, the Minister, after three months notice, may order all plants and trees to be destroyed; (*d*) Prunings must be destroyed if required by an Inspector; (*e*) No young plants intended for sale may be grown within a prescribed distance of fruit trees in bearing	(*a*) Penalty for selling or exposing for sale fruit infected with codlin moth, not less than 10s. nor more than £5; (*b*) Potatoes must be exported in new packages and accompanied by a certificate from an Inspector; (*c*) A Municipal Council may make by-laws regarding the introduction and prevention of pests

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
(i) Acts in Force ..	Vine and Vegetation Diseases and Fruit Pests Act 1912	Vegetation and Vine Diseases Act 1915 Mildura Vineyards Protection Act 1918	Grape Vine Diseases Act 1877 (not repealed but superseded by the Diseases in Plants Act 1916) Diseases in Plants Act 1916
(ii) Definition of Disease	The disease in grape vines caused by the insect Phylloxera vastatrix	The disease in grape vines caused by the insect Phylloxera vastatrix or any disease in grape vines proclaimed to be a disease	Any disease affecting grape vines caused by or consisting of the presence of any insect or fungus or any other proclaimed disease
(iii) Prohibition of Importation	The Governor may prohibit the introduction from any place of vines, grapes, or packages containing or which have contained or been in contact with vines or grapes the introduction of which has been prohibited	The Governor may by order prohibit or restrict the importation of vines, vine cuttings, or grapes either generally or from any particular place	The importation is prohibited of plants or portions of plants of all species of Vitis, but the Minister may import any plants, all of which, when so imported, are to be suitably disinfected and, if deemed advisable, detained and grown in close quarantine
(iv) Procedure with respect to prohibited Imports. (For Commonwealth Act see text)	..	While prohibition order is in force, all vines or vine cuttings or grapes brought into Victoria are to be destroyed or otherwise disposed of as the Minister directs	All grape vines and grape-vine cuttings introduced contrary to any proclamation may be seized and destroyed by fire
(v) Penalty for introducing prohibited Vines, etc.	No claim for compensation can be entertained for the destruction of prohibited introduced vines, etc.	Not more than £100 or imprisonment for not more than six months	Not less than £10 and not more than £50
(vi) Districts ..	The Governor may proclaim (*a*) any portion of New South Wales a Vine District; and (*b*) upon a report of an Inspector that disease is found in any vineyard not within a District, and upon proof that disease exists therein, a Vine District including such vineyard	(*a*) The Governor may proclaim any portion of Victoria to be a Vine Disease District (*b*) The Shire of Mildura has been proclaimed a Vineyards Protection District under the *Mildura Vineyards Protection Act*	The Governor may declare any District to be a Fruit District
(vii) Constitution of Boards	A Board for each Vine District consisting of 5 members, vine-growers on the roll of the District, elected by such vine-growers, each elector being entitled to the prescribed number of votes If no candidates are elected the Governor may appoint a Board	The Mildura Vineyards Protection Board consists of 9 members elected by owners of ratable land. One vote is allowed for every 10 acres of vineyard (a portion exceeding 1 acre counting as 10 acres), but no person is entitled to more than three votes	
(viii) Rates leviable by Boards	A Board may levy an annual rate not exceeding 1 per centum on the value of each vineyard The Minister may subsidise rates, but such subsidy must not exceed the amount collected during a year Unless expressly provided by agreement, a tenant may recover half the rate from his landlord	The Mildura Board may levy an annual rate per acre on all vineyards exceeding 1 acre of not more than (*a*) 1s. after the vines attain the age of 2 years, (*b*) 2s. when a vineyard has been planted for 4 but less than 8 years, (*c*) 2s. 6d. on vineyards planted for 8 years or over Wine makers and distillers pay a rate of not more than 6d. per ton of grapes purchased	

RELATING TO VINE DISEASES.

South Australia.	Western Australia.	Tasmania.
Vine, Fruit and Vegetable Protection Act 1885, 1910 Phylloxera Act 1899, 1911	Plant Diseases Act 1914 ..	Importation of Diseased Grape Vines Prohibition Act 1879 Vegetation Diseases Act 1898
The disease in grape vines known as Phylloxera vastatrix, also the fungus anthracnose of the grape vine (Manginia ampelina)	Any parasite, of whatsoever kind, whether of animal or vegetable nature, which commonly attacks or is found on plants	Any disease affecting plants which may be declared to be a disease by the Governor. Vine louse (Phylloxera vastatrix) has been so declared
The Governor may prohibit (*a*) the introduction of any vine or grapes or package which has been in contact therewith; (*b*) the importation of any insect; (*c*) the introduction of anything likely to introduce disease or insects	The Governor may prohibit the bringing into the State, either generally or from any specified place, of any specified kinds of plants or coverings for same or anything which is infected with disease. The introduction of grape vines from the other States is absolutely prohibited	The Governor may prohibit or restrict the importation of grape vines or cuttings either generally or from specified places
Anything introduced in contravention of a proclamation or regulation may, together with its container, be seized and destroyed by fire or otherwise	Any plant, covering, etc., which is introduced in contravention of any proclamation may be seized by an Inspector and disinfected, destroyed, or otherwise disposed of	Grape vines imported contrary to a proclamation, and every package or covering must be forfeited and destroyed or otherwise disposed of
Not less than £5 nor more than £100 or imprisonment for not exceeding six months	Not less than £5 nor more than £100	Not more than £10 for offences against the *Vegetation Diseases Act*
The State is divided into six Phylloxera Districts	..	..
A Board consists of 8 members, 2 appointed by the Minister and 1 elected for each District by vignerons on the roll. If the area of a vineyard exceeds 1 acre but not 10 acres, one vote is allowed; if it exceeds 10 but not 25 acres, two votes; if it exceeds 25 but not 50 acres, three votes; and one additional vote is allowed for every additional 50 acres	..	..
The Board may declare an annual rate per acre on all vineyards exceeding 1 acre in extent of (*a*) 3d. when vines have attained the age of 2 years, (*b*) 6d. when a vineyard has been planted for 4 but less than 8 years, (*c*) 1s. on vineyards planted for 8 years or longer Wine makers and distillers must pay a rate of 6d. for every ton of grapes annually purchased	..	

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
(ix) Returns by Occupiers or Owners of Vineyards	The owner or occupier of a vineyard within a District must forward annually to the Board or to an officer appointed by the Governor a return shewing the area planted with vines, under a penalty not exceeding £5	Every occupier of vineyards within the Mildura District must give the Secretary of the Board notice stating his name and address, and such particulars as are necessary in order to identify his vineyard, under a penalty not exceeding £5	Every owner or occupier of an orchard within a Fruit District must register his orchard annually, stating the number of acres under vines, under a penalty of, for the first offence, not less than £1 nor more than £5, and for subsequent offences not less than £2 nor more than £10
(x) Appointment of Inspectors	(a) The Minister may appoint Inspectors of Vineyards; (b) A Board may appoint District Inspectors	(a) The Governor may appoint a Certifying Inspector and Inspectors of Vineyards; (b) The Mildura Board may appoint Inspectors for its District, and every member of the Board is an Inspector *ex officio*	The Governor may appoint Inspectors.
(xi) Powers of Entry of Inspectors	An Inspector may (a) enter at any time any vessel, building, land, or place containing any vines or grapes introduced into the State and examine them in quarantine, and, if they are diseased, destroy them; (b) enter any vineyard and examine vines and grapes therein, and temporarily isolate a vineyard in which he finds signs of disease; (c) periodically inspect vineyards in Districts and report the failure of any Board to give effect to the provisions of the Act	(a) Under the *Vegetation and Vine Diseases Act*, an Inspector must immediately after being appointed inspect all vineyards within his District, and may at all reasonable hours in the daytime enter into any vineyard for the purpose of ascertaining whether disease exists in such vineyard; (b) Under the *Mildura Vineyards Protection Act*, an Inspector may (i) between 7 a.m. and 5 p.m. enter into any land or place in which he suspects that vines or grapes have been brought into the District and examine them and destroy them if diseased; (ii) between 7 a.m. and 5 p.m. enter any vineyard and examine vines and grapes and quarantine temporarily any vineyard in which he finds any signs of disease	An Inspector may (a) seize any plant suspected to be diseased which is being introduced into Queensland or removed from one part thereof to another, also suspected boxes, packages, etc.; (b) enter at all reasonable times upon any land upon which any diseased plant is or is suspected to exist for the purpose of searching for and examining such plant
(xii) Notification of Disease by Occupier or Owner	The owner, tenant or person in charge of a vineyard must immediately notify an Inspector, District Inspector or the Minister of the appearance of any sign which may reasonably be suspected to be caused by disease	The owner, tenant, lessee or person in charge of a vineyard must immediately on the first appearance of any disease notify an Inspector or the Minister. In the Mildura District the owner, occupier or person in charge must notify an Inspector of the Board	..
(xiii) Penalty for not notifying Disease	Not exceeding £100 or imprisonment for not more than six months, and no claim for compensation is entertained	All claim to compensation is forfeited and a penalty of not more than £100 or six months' imprisonment imposed. Maximum penalty in Mildura District, £50	..
(xiv) Procedure when a Vineyard is found to be infected with Disease	The Governor or a Board may— (a) isolate the vineyard and all vineyards within a radius of 1 mile thereof; (b) prohibit the removal of any vines, grapes, packages or things; (c) cause all vines within a radius of 1 mile to be rooted up, the land thoroughly trenched, all vines destroyed by fire, and other precautionary measures taken to prevent the spread of disease	(a) All vines planted or growing in a vineyard reported as diseased or within a radius of 3 miles thereof, if the Minister so directs, must be completely rooted up and destroyed by an Inspector; (b) The Mildura Board may cause all vines in an infected quarantined area to be destroyed by bisulphide of carbon and afterwards uprooted and burned and may take other precautionary measures to prevent the spread of disease	The occupier or owner of the land upon which are diseased plants may be ordered to eradicate the disease; or if it cannot be eradicated otherwise than by the destruction of the plants the Minister may order the occupier or owner to destroy such plants, and, if they fail to do so, they may be summoned and an Inspector authorized to eradicate the disease at their expense

RELATING TO VINE DISEASES—*continued.*

South Australia.	Western Australia.	Tasmania.
The owner of every vineyard exceeding 1 acre in extent must furnish the Secretary of the Board annually with a return shewing the area planted with vines and the age of such vines, under a penalty not exceeding £20	..	..
(*a*) The Minister of Agriculture may appoint Inspectors under the *Vine, Fruit and Vegetable Protection Act*; (*b*) The Board may appoint Inspectors under the *Phylloxera Act*, and every member of the Board is an Inspector *ex officio*	The Governor may, subject to the *Public Service Act*, appoint Inspectors and temporary Inspectors	The Governor may appoint officers of Customs and other persons to be Inspectors
(*a*) Under the *Vine, Fruit and Vegetable Protection Act*, an Inspector may enter at all times upon lands, buildings, vessels, etc., and remove any plant for the purpose of ascertaining if it is diseased; (*b*) Under the *Phylloxera Act* an Inspector may between 7 a.m. and 5 p.m. (i) enter into and examine any vessel, land, etc., suspected to contain any vines or grapes brought into the State and search for disease, and remove diseased vines into quarantine and destroy them; (ii) enter any vineyard and examine any vine or grapes and temporarily quarantine any vineyard in which he finds any sign of disease	An Inspector may at any time enter upon any orchard, land, premises, conveyance, or vessel and search and inspect them for the purpose of ascertaining whether the same is infected, and examine fruit, coverings, etc., and dig up plants, open packages, etc.	An Inspector may at any time enter upon any ship, vessel, or place and search for insects and fungi, and diseased plants and packages likely to convey disease
If any sign appears which may reasonably be suspected to be caused by disease, the owner, occupier or person in charge of the vineyard must immediately notify an Inspector or the Board or the Minister	Every occupier of an orchard in which any disease appears must within 24 hours of its discovery give notice to an Inspector or to the Under-Secretary for Agriculture	..
Not exceeding £50	Not less than £5 nor more than £100	..
(*a*) Under the *Vine, Fruit and Vegetable Protection Act*, an Inspector may serve the occupier with a notice directing that, within the period of time therein stated, steps must be taken for the destruction of the insect or the eradication of the disease, otherwise an Inspector may do so at occupier's or owner's expense; (*b*) Under the *Phylloxera Act*, the Board may cause all vines in a quarantined area to be destroyed with bisulphide of carbon and afterwards uprooted and burnt and take precautionary measures to prevent the spread of disease	An Inspector may require the owner or occupier to eradicate disease and prevent the spread thereof, in default he may do so at their expense. An Inspector may also destroy infected plants and coverings	..

CONSPECTUS OF ACTS AND REGULATIONS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
(xv) Neglected or abandoned Vineyards	If the owner, lessee or occupier of a vineyard ceases for two years to cultivate it, any Inspector may serve him with a notice to root up all vines therein, and if he fails to do so within three months, the Minister or a Board may do so at his expense	In the Mildura District all vines in vineyards which have remained unused or abandoned for two years may be destroyed at the cost of the owner by the Board, or an Inspector or other authorized person	..
(xvi) Replanting diseased Vineyards	No vines may be planted in land from which diseased vines have been removed, for a period of four years from such removal. Penalty for contravention not exceeding £100 and all such vines destroyed	No vines may be planted on land from which diseased vines have been removed or within a radius of 3 miles thereof for such time as may be proclaimed after such removal. Penalty for contravention not exceeding £100 or six months' imprisonment. In Mildura District the period is 10 years and the maximum penalty £50	..
(xvii) Isolation of diseased Vines	The Governor may— (a) prohibit the removal from one place to another of vines, grapes, etc., likely to convey disease ; (b) declare any parcel of land or building a quarantine ; (c) isolate any quarantine or place whereupon there are or have recently been diseased vines or grapes	(a) The removal of any vine or part of a vine from any Vine Disease District is prohibited ; (b) The Mildura Board, upon report that disease exists in a vineyard, may— (i) quarantine any area of such vineyard (ii) cause all quarantine areas to be clearly indicated by flags, etc.	The Governor may prohibit the removal of any plant from any place
(xviii) Compensation for the Destruction of Vines	Compensation may be claimed— (a) in respect of the rooting up of any vineyard in which there is no disease, to an amount not exceeding the ratable value of the vine yard ; (b) in respect of the rooting up of diseased vines to an amount not exceeding 50 per cent. of the ratable value of the vineyard	The owner of vines in a vineyard which has been rooted up, none of which are diseased, is entitled to an amount not exceeding the estimated value (after deducting the full cost of cultivation) of three years' crops of such vines. In the Mildura District such compensation is only payable on the recommendation of the Board and is assessed on the basis of the actual damage sustained	Compensation is only payable where any plant not diseased is destroyed by direction of the Minister for the purpose of preventing the spread of any virulent disease
(xix) Miscellaneous..	(a) Grape vine cuttings must not be removed from the counties of Camden and Cumberland without having been immersed in water for six hours and then for twelve hours in a solution of sulpho-carbonate of potassium ; (b) When a vine district is proclaimed the Minister must cause a list of vignerons therein to be made ; (c) Penalty for selling or offering or exposing for sale diseased vines or grapes not exceeding £5 in addition to any other penalty	(a) After the rooting up and destruction of vines, no tenant of land used exclusively as a vineyard, is bound by any agreement or lease entered into by him ; (b) The Mildura Board may propagate and sell phylloxera resistant vines and conduct experimental and research work in connexion with vine diseases ; (c) Penalty for selling or offering for sale diseased grapes or vines in Mildura District, not exceeding £50	Penalty for selling or offering or exposing for sale diseased grapes or vines, not exceeding £50

RELATING TO VINE DISEASES—*continued.*

South Australia.	Western Australia.	Tasmania.
All vineyards which have remained unused or abandoned for two years may be destroyed, at the cost of the owner, by the Board or any Inspector or other person authorized by the Board	An Inspector, on an order of the Minister, may destroy all plants in an orchard which is habitually or has for a long period been left uncultivated or neglected	..
Except with the sanction of the Board no vines may be planted on land from which any diseased vines have been removed for a period of ten years after such removal. Penalty for contravention not exceeding £50 and all such vines destroyed without compensation. Under the *Vine, Fruit and Vegetable Protection Act*, the period is fixed at five years and the penalty at not less than 10s. nor more than £10 or imprisonment up to one month		
(*a*) The Board may quarantine an area within a radius of 2 chains from a diseased vineyard and indicate such area by flags, etc. (*b*) The Governor may— (i) prohibit the removal within the State of any thing likely to convey disease ; (ii) declare any land or building a quarantine ; (iii) quarantine any place where diseased vines or grapes have been found or have been recently	(*a*) The Governor may appoint *quarantine grounds* ; (*b*) The Minister may declare an orchard to be infected and no plants or fruit may be removed therefrom except with the permission of an Inspector	Imported plants may be removed into quarantine if an Inspector is not satisfied that they are free from disease
Compensation is paid on the recommendation of the Board in respect of all vineyards destroyed under the *Phylloxera Act*, but no compensation is paid in respect of— (*a*) any vineyard unused or abandoned for two years, or (*b*) any loss sustained in connexion with diseased vines or grapes introduced into the State	No person is entitled to any compensation in respect of anything done by any Inspector in discharge of any duty or in respect of any measure taken to eradicate or prevent the spread of disease	
Penalty for selling or offering or exposing for sale diseased grapes or vines, not exceeding	Penalty for selling or offering or exposing for sale infected or diseased plants or fruit, not less than £5 nor more than £100	All plants when landed are to be unpacked and examined by an Inspector at the port of entry, with the exception of those from the Australian States which are accompanied by a certificate from the Inspector in the country of origin that they have been fumigated with hydro-cyanic gas or sprayed with Bordaux mixture

SECTION IV.

POPULATION.

[NOTE.—This Section is printed out of its usual order for the reasons given on page 82.]

§ 1. Commonwealth Population—Its Distribution and Fluctuation.

1. **Present Population.**—The estimated population of the several States and Territories of the Commonwealth at the end of each of the five years 1916-20 is shewn in the following table :—

POPULATION OF COMMONWEALTH, ON 31st DECEMBER, 1916-20.

Year.	States.						Territories.		Commonwealth.
	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern.	Federal.	
				MALES.					
1916	945,846	666,186	352,639	212,602	159,086	96,010	3,712	1,194	2,437,275
1917	960,103	671,008	354,929	213,691	157,355	96,945	3,748	1,080	2,458,859
1918	984,453	684,167	363,650	219,723	159,662	100,109	3,499	1,179	2,516,442
1919	1,041,993	739,872	390,682	240,226	174,750	106,374	3,376	1,008	2,698,281
1920	1,067,513	753,710	397,180	245,325	176,638	107,283	2,911	1,062	2,751,622
				FEMALES.					
1916	938,876	738,645	325,347	229,345	147,505	99,656	954	1,029	2,481,357
1917	959,518	746,231	332,699	233,139	149,137	101,131	1,055	1,024	2,523,934
1918	976,990	753,266	341,887	237,965	150,120	102,815	1,141	1,053	2,565,237
1919	996,159	763,369	346,906	241,389	152,655	103,581	1,171	911	2,606,141
1920	1,023,602	774,441	355,065	245,852	154,181	105,564	1,081	910	2,660,696
				TOTAL.					
1916	1,884,722	1,404,831	677,986	441,947	306,591	195,666	4,666	2,223	4,918,632
1917	1,919,621	1,417,239	687,628	446,830	306,492	198,076	4,803	2,104	4,982,793
1918	1,961,443	1,437,433	705,537	457,688	309,782	202,924	4,640	2,232	5,081,679
1919	2,038,152	1,503,241	737,588	481,615	327,405	209,955	4,547	1,919	5,304,422
1920	2,091,115	1,528,151	752,245	491,177	330,819	212,847	3,992	1,972	5,412,318

2. **Growth of Population.**—(i) *1788 to 1824.* From 1788, when settlement first took place in Australia, until December, 1825, when Van Diemen's Land (now Tasmania) became a separate colony, the whole of the British Possessions in Australia were regarded as one colony, viz., that of New South Wales. The population during this period increased very slowly, and at the end of 1824 had reached only 48,072.

* The population with which settlement in Australia was inaugurated, and that at the end of each year until 1824, are as follows :—

POPULATION OF COMMONWEALTH ON 31st DECEMBER, 1788 TO 1824.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.
1788[a]	..	..	1,024	1806	5,389	2,521	7,910
1788	..	..	859	1807	5,939	2,855	8,794
1789	..	..	645	1808	6,822	3,441	10,263
1790	..	..	2,056	1809	7,618	3,942	11,560
1791	..	..	2,873	1810	7,585	3,981	11,566
1792	..	..	3,264	1811	7,697	4,178	11,875
1793	..	..	3,514	1812	8,132	4,498	12,630
1794	..	..	3,579	1813	9,102	4,855	13,957
1795	..	..	3,466	1814	9,295	4,791	14,086
1796	2,953	1,147	4,100	1815	9,848	5,215	15,063
1797	3,160	1,184	4,344	1816	11,690	5,863	17,553
1798	3,367	1,221	4,588	1817	14,178	7,014	21,192
1799	3,804	1,284	5,088	1818	17,286	8,573	25,859
1800	3,780	1,437	5,217	1819	21,366	10,106	31,472
1801	4,372	1,573	5,945	1820	23,784	9,759	33,543
1802	5,208	1,806	7,014	1821	26,179	9,313	35,492
1803	5,185	2,053	7,238	1822	27,915	9,449	37,364
1804	5,313	2,285	7,598	1823	30,206	10,426	40,632
1805	5,395	2,312	7,707	1824	36,871	11,201	48,072

(a) On 26th January.

(ii) *1825 to 1858.* The period extending from 1825 to 1859 witnessed the birth of the colonies of Tasmania (then known as Van Diemen's Land), Western Australia, South Australia, Victoria, and Queensland. The years in which these came into existence as separate colonies were as follows :—Tasmania, 1825 ; Western Australia, 1829 ; South Australia, 1834 ; Victoria, 1851 ; Queensland, 1859.

The estimated population of the Commonwealth at the end of each year of this transition period is as follows :—

POPULATION OF COMMONWEALTH ON 31st DECEMBER, 1825 TO 1858.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.
1825	40,288	12,217	52,505	1842	153,758	87,226	240,984
1826	41,289	12,593	53,882	1843	158,846	92,002	250,848
1827	43,053	13,247	56,300	1844	165,034	99,253	264,287
1828	44,778	13,419	58,197	1845	173,159	105,989	279,148
1829	46,946	14,988	61,934	1846	181,342	111,907	293,249
1830	52,885	17,154	70,039	1847	190,265	118,532	308,797
1831	57,037	18,944	75,981	1848	201,612	130,716	332,328
1832	62,254	21,683	83,937	1849	221,978	151,384	373,362
1833	71,669	26,426	98,095	1850	238,683	166,673	405,356
1834	76,259	29,297	105,556	1851	256,975	180,890	437,865
1835	81,929	31,425	113,354	1852	304,126	209,670	513,796
1836	89,417	35,703	125,120	1853	358,203	242,789	600,992
1837	94,881	39,607	134,488	1854	414,337	280,580	694,917
1838	105,271	46,597	151,868	1855	470,118	323,142	793,260
1839	115,480	54,459	169,939	1856	522,144	354,585	876,729
1840	127,306	63,102	190,408	1857	574,800	395,487	970,287
1841	144,114	76,854	220,968	1858	624,380	426,448	1,050,828

(iii) *1859 to 1920.* From 1859, the year in which Queensland came into existence as a separate colony, until the beginning of 1901, when the Commonwealth of Australia was inaugurated under the provisions of the Commonwealth Constitution Act, Australia consisted of six States, practically independent of each other in all matters of government. During this period, the population of the Commonwealth increased from 1,050,828 at the end of 1858 to 3,765,339 on the 31st December, 1900. The particulars for this period are given in the table hereunder.

During the twenty years that have elapsed since the federation of the States was effected the population of the Commonwealth has increased by 1,646,979, from 3,765,339 on 31st December, 1900, to 5,412,318 on 31st December, 1920, as shewn hereunder :—

POPULATION OF COMMONWEALTH ON 31st DECEMBER, 1859 TO 1920.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.
1859	644,376	452,929	1,097,305	1890	1,692,831	1,458,524	3,151,355
1860	668,560	477,025	1,145,585	1891	1,736,617	1,504,368	3,240,985
1861	669,373	498,776	1,168,149	1892	1,766,772	1,538,981	3,305,753
1862	683,650	523,268	1,206,918	1893	1,791,815	1,570,080	3,361,895
1863	704,259	555,033	1,259,292	1894	1,824,217	1,602,543	3,426,760
1864	740,433	584,750	1,325,183	1895	1,855,539	1,636,082	3,491,621
1865	773,278	616,765	1,390,043	1896	1,887,174	1,665,924	3,553,098
1866	800,648	643,307	1,443,955	1897	1,917,460	1,700,323	3,617,783
1867	819,127	664,721	1,483,848	1898	1,937,629	1,727,086	3,664,715
1868	849,272	690,280	1,539,552	1899	1,959,074	1,756,914	3,715,988
1869	875,139	717,018	1,592,157	1900	1,976,992	1,788,347	3,765,339
1870	902,494	745,262	1,647,756	1901	2,004,836	1,820,077	3,824,913
1871	928,918	771,970	1,700,888	1902	2,028,008	1,847,310	3,875,318
1872	947,422	795,425	1,742,847	1903	2,045,144	1,871,448	3,916,592
1873	972,907	821,613	1,794,520	1904	2,072,783	1,901,367	3,974,150
1874	1,001,096	848,296	1,849,392	1905	2,100,118	1,932,859	4,032,977
1875	1,028,489	869,734	1,898,223	1906	2,126,730	1,964,755	4,091,485
1876	1,061,477	897,202	1,958,679	1907	2,160,213	2,001,509	4,161,722
1877	1,102,340	928,790	2,031,130	1908	2,193,981	2,038,297	4,232,278
1878	1,132,573	959,591	2,092,164	1909	2,242,215	2,081,745	4,323,960
1879	1,168,781	993,562	2,162,343	1910	2,296,308	2,128,775	4,425,083
1880	1,204,514	1,027,017	2,231,531	1911	2,382,224	2,191,644	4,573,868
1881	1,247,059	1,059,677	2,306,736	1912	2,478,208	2,268,593	4,746,801
1882	1,289,892	1,098,190	2,388,082	1913	2,554,898	2,339,201	4,894,099
1883	1,357,423	1,148,313	2,505,736	1914	2,577,528	2,394,759	4,972,287
1884	1,411,996	1,193,729	2,605,725	1915	2,528,016	2,442,038	4,970,054
1885	1,460,394	1,234,124	2,694,518	1916	2,437,275	2,481,357	4,918,632
1886	1,510,954	1,277,096	2,788,050	1917	2,458,859	2,523,934	4,982,793
1887	1,559,118	1,322,244	2,881,362	1918	2,516,442	2,565,237	5,081,679
1888	1,610,548	1,371,129	2,981,677	1919	2,698,281	2,606,141	5,304,422
1889	1,649,094	1,413,383	3,062,477	1920	2,751,622	2,660,696	5,412,318

It will be seen from the foregoing tables that the population of Australia attained its first million in 1858, seventy years after settlement was first effected ; its second million nineteen years later, in 1877 ; its third million twelve years later, in 1889 ; its fourth million sixteen years later, in 1905 ; and its fifth million thirteen years later, in 1918. The fifth million was expected in 1915, but owing to the war and the consequent dispatch of men out of Australia this result was not attained until 1918. As a matter of fact, through the retardation of immigration and the departure of troops consequent upon the war, the total population of Australia diminished during 1915 by 2,233 persons, and during 1916 by 51,422 persons. Taking the sexes separately, there was a decrease of 40,253 males and an increase of 86,598 females during those years. During 1917 and 1918 there was an increase of 163,047 in the total population, made up of 79,167 males and 83,880 females, and the fifth million was attained in March, 1918. In 1919 the population increased by 222,743, of whom 181,839 were males and 40,904 were females. The large increase in males was mainly due to the number of returning soldiers. The increase during 1920 was 107,896, of whom 53,341 were males and 54,555 were females.

The growth of the total population of the Commonwealth generally, and of each State therein, is graphically shown on page 1131, and of each sex considered separately on pages 1132 and 1133.

§ 2. Influences affecting Growth and Distribution of Population.

1. **Mineral Discoveries.**—The discovery of gold in Australia in 1851 was undoubtedly one of the most influential factors in bringing about a rapid settlement of the country. Its effect may be gauged by a comparison of the increase during the ten years preceding, with that during the ten years succeeding the discovery. From 31st December, 1840, to 31st December, 1850, the increase was only 214,948 (viz., from 190,408 to 405,356). The rush of people to the newly-discovered goldfields during the succeeding decennium caused an increase of no less than 740,229, the population advancing to 1,145,585 on 31st December, 1860. In 1861, owing to the opening up in that year of the New Zealand goldfields, a rush of population from Australia set in, the result being that the net increase of population of the Commonwealth, which in 1855 amounted to 98,343, and even in 1860 was as much as 48,280, fell in 1861 to 22,564. In fact, during the year 1861 the departures from Australia exceeded the arrivals by 6,283, the gain of 22,564 being due to the births exceeding the deaths by 28,847.

In more recent years the gold discoveries of Western Australia in 1886 and subsequent years led to such extensive migration to that State that its population, which on 31st December, 1885, amounted to only 35,959, increased in 35 years by no less than 294,860, totalling 330,819 on 31st December, 1920. In this case, however, the additions to the population of the western State were largely drawn for some years from those of the eastern States, so that the actual gain of population to the Commonwealth was relatively slight.

2. **Pastoral Development.**—Very early in the colonisation of Australia it was recognised that many portions were well adapted for pastoral pursuits, and pastoral developments have led to a considerable distribution of population in various directions. As the numbers engaged in connexion therewith, compared with the value of the interests involved, are relatively small, and as pastoral occupancy tends to segregation rather than aggregation of population, the growth of the pastoral industry is but slightly reflected in the population statistics of the Commonwealth.

3. **Agricultural Expansion.**—At the present time the area annually devoted to crops in the Commonwealth is over 13¼ millions of acres. Although considerable in itself, this area, viewed in relation to the total area of the Commonwealth, is relatively small, and represents considerably less than 1 per cent. of the total area. Per head of population of the Commonwealth the area under crop, however, is about 2½ acres, a fairly high amount when allowance is made for the recency of Australian settlement. About 72 per cent. of the area under crop in 1919-20 was devoted to the production of wheat and hay, both of which for profitable production in Australia require a considerable area in the one holding. Thus, on the whole, the agricultural districts of Australia are somewhat sparsely populated, though in a less marked degree than is the case in the pastoral areas.

4. **Progress of Manufacturing Industries.**—One direct effect of the development of manufacturing industries is the concentration of population in places offering the greatest facilities for the production of the particular commodities. In Australia, where manufacturing industries are as yet in their infancy, the tendency throughout has been to concentrate the manufacturing establishments in each metropolis. This has accentuated the growth of the capital cities, which growth, when compared with that of the rest of the country, appears somewhat abnormal.

5. **Influence of Droughts.**—The droughts, which at times so seriously affect the agricultural and pastoral prospects of Australia, have a marked influence on the distribution of population. Districts, which in favourable seasons are fairly populous, occasionally in times of drought become more or less depopulated until the return of better conditions. This movement, however, ordinarily affects only the internal distribution of the population and not the total, but severe drought may even make its influence felt in the statistics of the total population of Australia. Thus in the case of the drought of 1902-3, the departures from the Commonwealth exceeded the arrivals for the two years 1903 and 1904 by 12,859. It may be noted also, that for the former of these years, the natural increase of population by excess of births over deaths was abnormally low, being only 51,150, as compared with 54,698 in the preceding and 60,541 in the succeeding year. As the solution of the problem of dealing with droughts is advanced, their influence will be less marked.

6. **Other Influences.**—(i) *Commercial Crises.* The effect on population of a commercial crisis, such as that which occurred in Australia in the early years of the final decade of the last century, is clearly indicated on comparing the migration statistics of the Commonwealth for the five years 1887-91 with those for the five years 1892-96. During the former period, the arrivals in the Commonwealth exceeded the departures by no less than 146,872. In the latter period, the corresponding excess amounted to only 2,064.

(ii) *War.* The war in South Africa has left its impress on the population statistics of the Commonwealth, the departures during 1899 and 1900 exceeding the arrivals for the same period by 10,546. A similar but much more marked result is shewn in connexion with the European war. Thus, for the four years 1914, 1915, 1916 and 1917 taken together, the departures exceeded the arrivals by a total of no less than 238,823 In 1918, 1919, and 1920, however, the arrivals exceeded the departures by 189,780. In this connexion it may be mentioned that during 1919 the arrivals of members of the Expeditionary Forces exceeded the departures of such members by 162,376.

A reference to the graphs of population on pages 1131 to 1136 will illustrate the preceding observations.

§ 3. Special Characteristics of Commonwealth Population.

1. **Sex Distribution.**—In respect of the relative proportions of the sexes in its population, Australia has, since the first settlement of the continent in 1788, differed materially from the older countries of the world. In the latter, the populations have, in general, grown by natural increase, and their composition usually reflects that fact, the numbers of males and females being in most countries approximately equal, with a more or less marked tendency, however, for the females to slightly exceed the males. The excess of females arises from a variety of causes, amongst which may be mentioned —(*a*) higher rate of mortality amongst males ; (*b*) greater propensity on the part of males to travel ; (*c*) the effects of war ; (*d*) employment of males in the army, navy, and mercantile marine ; (*e*) preponderance of males amongst emigrants. On the other hand, the last-mentioned cause has tended naturally to produce an excess of males in Australia, since the majority of those emigrating to Australia have been males. The circumstances under which the colonisation of Australia was first undertaken, and the remoteness of this country from Europe, have combined to accentuate this feature.

There is little doubt that the continent presented few attractions to the explorers who visited its shores, mainly on the west and north, during the sixteenth, seventeenth, and early part of the eighteenth centuries, and it was only when the Declaration of Independence of the United States, in 1776, closed to the British prison authorities the North American plantations, which had previously been used as receptacles for the deportation of convicts, that the overcrowding of the gaols caused them to consider the advisability of converting the great southern continent into a convict settlement. This idea was put into practice in 1787, when the first consignment left England, arriving in Sydney Cove on the 26th January, 1788. Reports concerning the number of persons actually landed are conflicting, but it appears that the total may be set down approximately at 1,024, including the military. Details as to the sexes are not available, but the males must have largely preponderated. Indeed, nearly nine years later, on the 31st December, 1796, in a total population of 4,100, there was an excess of 44 males in every 100 of the population.

The subsequent progress of Australia resulting from extensive mineral discoveries and the development of its great natural resources, pastoral, agricultural, forestal, etc., have tended to attract male rather than female immigrants, particularly in view of the distance from the principal centres of European population. Even at the Census of 4th April, 1921, after more than 133 years of settlement, there was an excess of 1.63 males in every 100 of the population, and this notwithstanding the equalising tendency due to additions to the population by means of births and to deductions therefrom by the deaths of immigrants, and notwithstanding also the heavy losses which the Australian Imperial Forces suffered during the Great War.

In the second issue of this publication, on pages 163 to 165, an extended table was published showing the masculinity of the population of each of the States for each year from 1796 to 1907. In the fifth issue, on page 123, the figures in this table for the years 1901-7 were modified to agree with the corrected estimates of the population, consequent

on the Census of 3rd April, 1911. The figures given in the tables mentioned represent the number of males to each 100 females.

A more satisfactory representation of masculinity, however, may be obtained by computing the ratio of the excess of males over females to the total population. This ratio expressed as a percentage has now been adopted by the Commonwealth Bureau of Census and Statistics as the "masculinity" of the population, and the ratios so computed are given hereunder for intervals of 5 years from 1800 to 1915 and for the five years 1916, 1917, 1918, 1919 and 1920 for the Commonwealth and each of its component States and Territories :—

MASCULINITY OF THE POPULATION, 1800 TO 1920.

(EXCESS OF MALES OVER FEMALES PER 100 OF POPULATION.)

Year.	*States.*						*Territories.*		C'wealth.
	N.S.W.(a)	Victoria.	Q'land.	S.A.(b)	W. Aust.	Tasmania.	North'rn (c)	Federal. (d)	
1800	44.91	..	..	..	..	..	..	..	44.91
1805	40.00	..	..	..	..	..	..	..	40.00
1810	31.16	..	..	..	..	..	..	..	31.16
1815	30.76	..	..	..	..	..	..	..	30.76
1820	41·81	..	..	..	..	..	..	..	41.81
1825	53.00	..	..	..	..	54.72	..	..	53.46
1830	52.06	..	..	..	49.66	49.17	..	..	51.02
1835	45.71	..	..	..	31.10	43.13	..	..	44.55
1840	34.25	..	..	13.08	24.10	39.31	..	..	33.72
1845	21.05	..	..	14.07	20.07	36.63	..	..	24.06
1850	16.13	..	..	12.72	21.51	28.44	..	..	17.76
1855	11.14	30.41	..	0.31	31.87	10.57	..	..	18.53
1860	13.53	22.74	19.88	2.47	25.07	10.56	..	..	16.72
1865	9.12	12.89	22.62	4.36	26.98	7.59	..	..	11.26
1870	9.29	9.74	20.10	2.84	23.42	6.09	..	..	9.54
1875	8.71	6.74	20.83	3.49	19.55	5.41	..	..	8.36
1880	9.28	4.95	17.53	6.69	14.92	5.53	..	..	7.95
1885	9.89	5.04	18.02	5.02	15.06	5.09	..	..	8.40
1890	8.28	5.06	13.87	4.12	18.98	5.61	..	..	7.43
1895	6.45	2.55	12.34	2.46	11.72	3.92	..	..	6.28
1900	5.28	0.61	11.24	1.98	22.34	3.83	76.57	..	5.01
1905	5.24	-1.17	9.81	0.08	17.13	2.96	66.49	..	4.15
1910	4.41	-0.65	8.69	1.54	14.13	2.03	65.89	..	3.79
1915	2·74	−2·55	6·83	−0·92	7·93	−0·13	59·95	4·65	1·73
1916	0·37	−5·16	4·03	−3·79	3·78	−1·86	59·11	7·42	−0·90
1917	0·03	−5·31	3·23	−4·35	2·68	−2·11	56·07	2·66	−1·31
1918	0·38	−4·81	3·08	−3·99	3·08	−1·33	50·82	5·65	−0·96
1919	2·25	−1·56	5·94	−0·24	6·75	1·33	48·49	5·05	1·74
1920	2·10	−1·36	5·60	−0·11	6·79	0·81	45·84	7·71	1·68

(a) Including Federal Territory prior to 1911. (b) Including Northern Territory prior to 1900. (c) Included with South Australia prior to 1900. (d) Part of New South Wales prior to 1911.

NOTE.—The sign − denotes excess of females over males per 100 of population.

The influence of the war will be observed in the decline of the masculinity for each of the States and the Commonwealth, and the introduction of negative results in the cases of South Australia, Tasmania and the Commonwealth indicating an excess of females there, as well as in Victoria, where this phenomenon was in evidence as far back as 1905. The effect of the demobilization of soldiers during 1919 has been to restore the excess of males in every State, except Victoria and South Australia.

The curious inequalities of the increases in the number of males and in the number of females for the Commonwealth as a whole, and for the individual States respectively, will be seen by referring to the graphs on pages 1132 and 1133.

The significance of the rates of masculinity shewn in the above table will perhaps be better understood by a comparison with the corresponding information for other countries. This has been made in the next table, which shews, for some of the principal countries of the world for which such particulars are available, the masculinity of the population according to the most recent statistics.

MASCULINITY OF THE POPULATION OF VARIOUS COUNTRIES.

Country.	Year.	Excess of Males over Females in each 100 of Population.	Country.	Year.	Excess of Males over Females in each 100 of Population.
Canada	1911	6.07	Russia (European) ..	1914	—1.05
Serbia	1910	3.27	Prussia	1910	—1.17
United States of America	1910	2.93	Finland	1918	—1.18
India (Feudatory States)	1911	2.88	Austria	1912	—1.22
British India	1911	2.24	German Empire ..	1910	—1.30
Bulgaria	1910	1.75	Switzerland ..	1910	—1.66
Australia	**1920**	**1.68**	France	1911	—1.74
New Zealand ..	1920	1.23	Italy	1911	—1.81
Ireland	1919	1.08	Poland	1911	—1.88
Japan	1918	1.08	Sweden	1918	—1.99
Rumania	1915	0.75	Spain	1910	—2.84
Greece	1907	0.68	Scotland	1919	—3.01
Union of South Africa(a)	1918	0.61	Denmark	1916	—3.07
Netherlands	1918	—0.51	Norway	1910	—3.36
Belgium	1917	—0.81	Portugal	1911	—5.08
Hungary	1910	—0.94	England and Wales ..	1919	—6.63

NOTE.—The sign — denotes excess of females over males in each 100 of population.
(a) White population only.

2. **Age Distribution.**—The causes which operated to bring about an excess of males in the population of the Commonwealth were equally effective in rendering the age distribution essentially different for many years from that of older countries. The majority of the immigrants, whether male or female, were in the prime of life, and as the Australian birth-rate in earlier years was a comparatively high one, the effect produced was a population in which the proportion of young and middle-aged persons was somewhat above, and the proportion for advanced ages somewhat below the normal. With the progress of time, however, the age distribution for Australia has fallen more and more into line with that for the older countries, and now, except in shewing a somewhat lower proportion at old age and a slightly higher at young ages, does not differ essentially therefrom.

Thus in the Commonwealth at the Census of 3rd April, 1911, the age distribution of the population was as shewn in the table hereunder; that for England and Wales for the same Census is given also for the sake of comparison :—

AGE DISTRIBUTION OF POPULATION.

COMMONWEALTH, AND ENGLAND AND WALES IN 1911.

Age Group.	Population of COMMONWEALTH, 3rd April, 1911.	Percentage on Total Population.	Population of ENGLAND and WALES, 3rd April, 1911.	Percentage on Total Population.
Under 15	1,409,823	31.65	11,050,867	30.63
15 and under 65	2,854,753	64.08	23,141,109	64.16
65 and upwards	190,429	4.27	1,878,516	5.21
Total	4,455,005	100.00	36,070,492	100.00

During the past 50 years, the age distribution of the Australian population has varied considerably, as will be seen from the following table, which gives for each sex the proportion per cent. of the total population in the age groups " under 15," " 15 and under 65," and " 65 and over." The figures upon which these percentages have been computed are those furnished by the Censuses of the several States and the Commonwealth Census of 1911. Those for 1861 include the results of the Western Australian Census of 1859,

while those for 1871 include the results of the Western Australian and Tasmanian Censuses of 1870 :—

AGE DISTRIBUTION OF COMMONWEALTH POPULATION, 1861 TO 1911.

Census Year.	Males.				Females.				Persons.			
	Under 15 Years.	15 and under 65.	65 and over.	Total.	Under 15 Years.	15 and under 65.	65 and over.	Total.	Under 15 Years.	15 and under 65.	65 and over.	Total.
	%	%	%	%	%	%	%	%	%	%	%	%
1861..	31.41	67.42	1.17	100	43.03	56.20	0.77	100	36.28	62.72	1.00	100
1871..	38.84	59.11	2.05	100	46.02	52.60	1.38	100	42.09	56.17	1.74	100
1881..	36.37	60.85	2.78	100	41.89	56.07	2.04	100	38.91	58.65	2.44	100
1891..	34.77	62.02	3.21	100	39.36	58.08	2.56	100	36.90	60.20	2.90	100
1901..	33.87	61.82	4.31	100	36.50	59.85	3.65	100	35.12	60.88	4.00	100
1911..	30.84	64.82	4.34	100	32.52	63.28	4.20	100	31.65	64.08	4.27	100

The excess of males over females, which existed prior to the war, was found mainly in ages of 21 and upwards. In the total population under the age of 21 there was, at the date of the 1911 Census, an excess of males over females amounting to less than 1.3 in each 100 of population, while in that aged 21 and upwards the excess of males over females was more than 5.8 in each 100 of population.

3. **Race and Nationality.**—(i) *Constitution of Australia's Population.* As regards race, the population of the Commonwealth may be conveniently divided into two main groups, one comprising the aboriginal natives of Australia, and the other the various immigrant races which, since the foundation of settlement in 1788, have made the Commonwealth their home. Under the head of "immigrant races" would, of course, be included not only those residents of Australia who had been born in other countries, but also their descendants born in Australia.

(*a*) *Aboriginals.* It would appear that the aboriginal population of Australia was never large, and that the life led by them was, in many parts of the country, a most precarious one. With the continued advance of settlement the numbers have shrunk to such an extent that in the more densely populated States they are practically negligible. Thus, at the Census of 1911 the number of full-blood aboriginals who were employed by whites or were living in proximity to settlements of whites was stated to be only 19,939. In some cases, however, more particularly in Queensland, Western Australia, and the Northern Territory, there are, in addition, considerable numbers of natives still in the "savage" state, numerical information concerning whom is of a most unreliable nature, and can be regarded as little more than the result of mere guessing.

Ethnologically interesting as is this remarkable and rapidly-disappearing race, practically all that has been done to increase our knowledge of them, their laws, habits, customs, and languages, has been the result of more or less spasmodic and intermittent effort on the part of enthusiasts either in private life or in the public service. An enumeration of them had never been seriously undertaken in connexion with any Australian Census, prior to that recently taken on 4th April, 1921, though a record of the numbers who were in the employ of whites, or living in contiguity to the settlements of whites, has on the occasion of the recent Censuses usually been made. As stated above, various guesses at the number of aboriginal natives at present in Australia have been made, and the general opinion appears to have prevailed that 150,000 might be taken as a rough approximation to the total. More recent estimates, however, have given results considerably below this figure. Thus, in his report of April 30, 1915, the Queensland Chief Protector of Aborigines estimates the total at 61,705, distributed as follows :—New South Wales, 6,580 ; Victoria, 283 ; Queensland, 15,000 ; South Australia, 4,842 ; Western Australia, 32,000 ; Northern Territory, 3,000. In his report of April 20, 1917, the Chief Protector of Aborigines in Queensland estimated their number in that State to be 16,600 in 1916. A somewhat similar estimate made at an earlier date by Dr. Roth, formerly Chief Protector of Aborigines in Queensland, gave Queensland at least 18,000; Western Australia at least 24,000, and the Northern Territory from 20,000 to 22,000. In view of these figures it would

appear that the number of full-blood Australian aboriginals has been less than 60,000 for several years. The whole matter, however, is involved in considerable doubt.

In connexion with the Census of 1921 special arrangements were made with the Chief Protectors of Aboriginals in the several States, and as a result of the careful inquiries made by them, an enumeration was made of the full-blood aboriginals of Australia, which, although still incomplete, probably represents a much closer estimate than has been available previously in connexion with the taking of a Census. The most serious defect on the present occasion is an estimate of 10,000 aboriginals which the Chief Protector of Western Australia regards as out of touch with his Department, and consequently not included in the figures supplied by him. Taking these into account, and adding them to the numbers otherwise recorded either by Census Collectors or by officers of the Aboriginals' Protection Department, the total in Australia at 4th April, 1921, may be stated approximately as follows :—

ESTIMATED FULL BLOOD AUSTRALIAN ABORIGINALS, 4th APRIL, 1921.

Particulars.	N.S.W.	Victoria.	Queensland.	South Australia.	Western Australia.	Northern Territory.	Total C'wlth.
Males	879	62	7,234	876	13,611	9,466	32,128
Females	622	49	5,380	733	11,976	7,883	26,643
Total ..	1,501	111	12,614	1,609	25,587	17,349	58,771

In the above table the 10,000 estimated as in Western Australia out of touch with civilization have been treated as 5,000 males and 5,000 females. From the foregoing it would seem that the marshaling of every aboriginal of full-blood in Australia would fail to muster a total of 60,000 at the present time.

In the Commonwealth Constitution Act provision is made for aboriginal natives to be excluded for all purposes for which statistics of population are made use of under the Act, but the opinion has been given by the Commonwealth Attorney-General that "in reckoning the population of the Commonwealth half-castes are not aboriginal natives within the meaning of section 127 of the Commonwealth of Australia Constitution Act, and should therefore be included." It may be added, however, that as "half-castes," living in the nomadic state, are practically indistinguishable from aboriginals, it has not always been found practicable to make the distinction, and further, that no authoritative definition of "half-caste" has yet been given.*

(b) *Immigrant Races.* As regards the immigrant races, it may be said that they consist mainly of natives of the three divisions of the United Kingdom and their descendants. The proportion of Australian-born contained in the population of the Commonwealth has, in recent years, increased rapidly, and at the Census of 3rd April, 1911, out of a total population of 4,424,535 persons whose birthplaces were specified, no fewer than 3,667,670, or 82.90 per cent., were Australian born, while of the remainder, 590,722, or 13.35 per cent., were natives of the United Kingdom, and 31,868, or 0.72 per cent., were natives of New Zealand, that is, 96.97 per cent. of the total population at the date of the Census had been born in either Australasia or the United Kingdom. The other birthplaces most largely represented in the Commonwealth were Germany, 32,990 (0.75 per cent.); China, 20,775 (0.47 per cent.); Scandinavia (comprising Sweden, Norway and Denmark), 14,700 (0.33 per cent.); Polynesia, 3,410 (0.08 per cent.); British India, 6,644 (0.15 per cent.); United States of America, 6,642 (0.15 per cent.); and Italy, 6,719 (0.15 per cent.). The total population of Asiatic birth was 36,442 (0.82 per cent.), of whom 3,474 were born in Japan.

(c) *Non-European Races.* The Census taken on the 3rd April, 1911, was the first occasion on which a systematic attempt had been made to ascertain the number of persons of non-European races in Australia. On former occasions the inquiry did not usually extend further than a request that in all cases in which the person enumerated

* An article on the Aborigines of Australia, specially written for the Year Book by W. Ramsay Smith, D.Sc., M.B., Ch.M., F.R.S.E., Permanent Head of the Department of Public Health of South Australia, will be found in Year Book No. 3, page 158.

was an Aboriginal or a Chinese, whether of the full blood or of the half-blood, the fact should be specially noted in the column on the Census schedule relating to birthplace. At the Census of 3rd April, 1911, the inquiry as to race was made one of the leading items, and all persons of non-European race were required to have their race specified. From the figures so obtained the following table has been compiled :—

PERSONS OF NON-EUROPEAN RACE IN THE COMMONWEALTH, 3rd APRIL, 1911.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

States and Territories.	Australian.	Asiatic.		African.		American.		Polynesian.		Indefinite.		Total.	
	Half-caste Aboriginals.	Full-blood.	Half-caste.	Full-blood	Half-caste.	Full-blood	Half-caste.	Full-blood	Half-caste.	Full-blood	Half-caste.	Full-blood.	Half-caste.
States—													
N.S. Wales ..	4,512	10,983	1,390	169	166	10	7	343	70	2	..	11,507	6,145
Victoria ..	447	5,972	1,056	58	63	6	9	12	5	1	2	6,049	1,582
Queensland ..	2,508	9,123	940	53	65	37	5	2,123	142	..	..	11,336	3,660
S. Australia	692	1,0 9	175	18	21	5	1	5	4	2	..	1,079	893
W. Australia	1,475	5,578	129	48	15	7	2	25	3	..	..	5,658	1,624
Tasmania ..	227	532	127	4	6	..	..	5	2	..	..	541	362
Territories—													
Northern ..	244	1,594	35	7	..	..	..	11	1	..	..	1,612	280
Federal ..	8	7	..	..	..	..	..	..	..	..	..	7	8
Total ..	10,113	34,838	3,852	357	336	65	24	2,524	227	5	2	37,789	14,554

The proportion of population of non-European race (exclusive of full-blood aboriginals) in each State and Territory is shewn in the following table, full-blood and half-caste non-Europeans being shewn separately :—

PROPORTION OF NON-EUROPEAN RACES IN THE COMMONWEALTH, 3rd APRIL, 1911.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

States and Territories.	Total Population.	Non-European Race. Full-blood. Number.	Full-blood. Number per 1000 of Total Population.	Half-caste. Number.	Half-caste. Number per 1000 of Total Population.	Total. Number.	Total. Number per 1000 of Total Population.
States—							
N. S. Wales ..	1,646,734	11,507	6.99	6,145	3.73	17,652	10.72
Victoria ..	1,315,551	6,049	4.60	1,582	1.20	7,631	5.80
Queensland ..	605,813	11,336	18.71	3,660	6.04	14,996	24.75
S. Australia ..	408,558	1,079	2.64	893	2.19	1,972	4.83
W. Australia	282,114	5,658	20.05	1,624	5.76	7,282	25.81
Tasmania ..	191,211	541	2.83	362	1.89	903	4.72
Territories—							
Northern ..	3,310	1,612	487.01	280	84.59	1,892	571.60
Federal ..	1,714	7	4.08	8	4.67	15	8.75
Total C'wealth..	4,455,005	37,789	8.48	14,554	3.27	52,343	11.75

(ii) *Biological and Sociological Significance.* As regards race and nationality, therefore, the population of Australia is fundamentally British, and thus furnishes an example of the transplanting of a race into conditions greatly differing from those in which it had been developed. The biological and sociological significance of this will ultimately appear in the effects on the physical and moral constitution produced by the complete change of climatic and social environment, for the new conditions are likely to considerably modify both the physical characteristics and the social instincts of the constituents of the population. At present, the characteristics of the Australian population, whether physical, mental, moral, or social, are only in the making, and probably it will not be possible to point to a distinct Australian type until three or four generations more have passed. Even then, it is hardly likely that, with the great extent of territory and varying conditions presented by the Commonwealth there will be but one

type; on the contrary, a variety of types may be expected. The Australian, at present, is little other than a transplanted Briton, with the essential characteristics of his British forbears, the desire for freedom from restraint, however, being perhaps somewhat accentuated. The greater opportunity for an open-air existence, and the absence of the restrictions of older civilisations, may be held to be in the main responsible for this.

4. Differences among the States and Territories.—(i) *Sex Distribution.* The varying circumstances under which the settlement of the several States has been effected, and the essentially different conditions experienced in the due development of their respective resources have naturally led to somewhat marked differences in the constitution of their populations. In the matter of sex distribution, the States in which the normal condition of older countries is most nearly represented are those of Victoria, South Australia, and Tasmania, in the first-mentioned of which, the females have, for some years past, with the exception of the year 1913, exceeded the males. This was also the case in South Australia in the years 1914 to 1920. In Western Australia and Queensland, on the other hand, the position of affairs has been somewhat abnormal, the excess of males over females in each 100 of population in 1915 being respectively 7.93 and 6.83. In 1916 and subsequent years, these rates were much reduced, having fallen in 1918 to 3.08 for each of the States mentioned. However, the rates for 1920 have risen to 6.79 and 5.60 respectively, indicating that the pre-war conditions are again in force. In 1917 there was only an excess of 585 males in New South Wales representing an excess of 0.03 in each 100 of the population, followed in 1918 by an excess of 0.38, and an excess of 2.25 in 1919 and 2.10 in 1920.

In the Northern Territory, owing to lack of settlement, the masculinity has always been large, the figures for 1920 giving an excess of males over females in each 100 of population of 45.84.

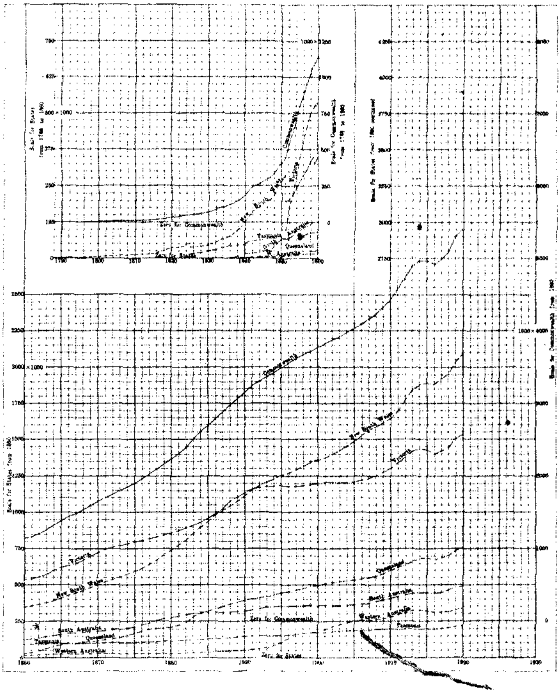
The variation in the masculinity of the estimated population of the several States and Territories and of the Commonwealth as a whole will be seen in the table on page 1125.

(ii) *Age Distribution.* The disparity in sex distribution exhibited by the several States is accompanied by a corresponding inequality in the matter of age distribution. For the purpose of convenient comparison in this respect the several populations may each be divided into three groups, indicative of dependence on the one hand, and ability to support on the other. The usual division for this purpose is into an initial group of "under 15" classed as "dependent age," a second group of "15 and under 65" classed as "supporting age," and a final group of "65 and upwards" classed "old age." From certain points of view the division might be into two classes, the "supporting" and the "dependent," as the majority of those aged "65 and upwards" strictly belong to the dependent class. The number of persons in each State and Territory at the Census, 3rd April, 1911, in each of the three groups mentioned, and the proportion of same to the total for each State or Territory and the Commonwealth, were as follows:—

NUMBER AND PROPORTION OF PERSONS IN THE COMMONWEALTH OF DEPENDENT, SUPPORTING, AND OLD AGE, ON 3rd APRIL, 1911.

State or Territory.	Number of Persons of—				Proportion of Population of—		
	Dependent age (under 15).	Supporting age (15 and under 65).	Old age (65 and upwards).	All ages.	Dependent age (under 15).	Supporting age (15 and under 65).	Old age (65 and upwards).
States—					%	%	%
New South Wales	526,625	1,053,400	66,709	1,646,[illegible]	[illegible]1.98	63.97	4.05
Victoria ..	400,260	847,700	67,591	[illegible]	30.42	64.44	5.14
Queensland ..	200,020	383,330	22,463	605,8[illegible]3	33.01	63.28	3.71
South Australia	127,290	262,356	18,912	408,[illegible]	31.15	64.22	4.63
Western Australia	87,884	187,574	6,656	282,114	31.15	[illegible].49	2.36
Tasmania ..	66,708	116,604	7,899	191,211	[illegible]	60.98	4.13
Territories—							
Northern ..	485	2,708	117	3,310	[illegible].65	81.81	3.54
Federal ..	551	1,081	82	1,714	[illegible].15	63.07	4.78
Commonwealth ..	1,409,823	2,854,753	190,429	4,455,005	31.65	64.08	4.27

GRAPHS OF TOTAL POPULATION OF THE COMMONWEALTH OF AUSTRALIA AND EACH STATE THEREIN, 1788-1920.



(See Tables pages 1120 to 1122.)

EXPLANATION OF GRAPHS, 1788-1860.—The base of each small square represents two years' interval for both States and Commonwealth, and the vertical height for the States 25,000 persons, and for the Commonwealth 50,000 persons.

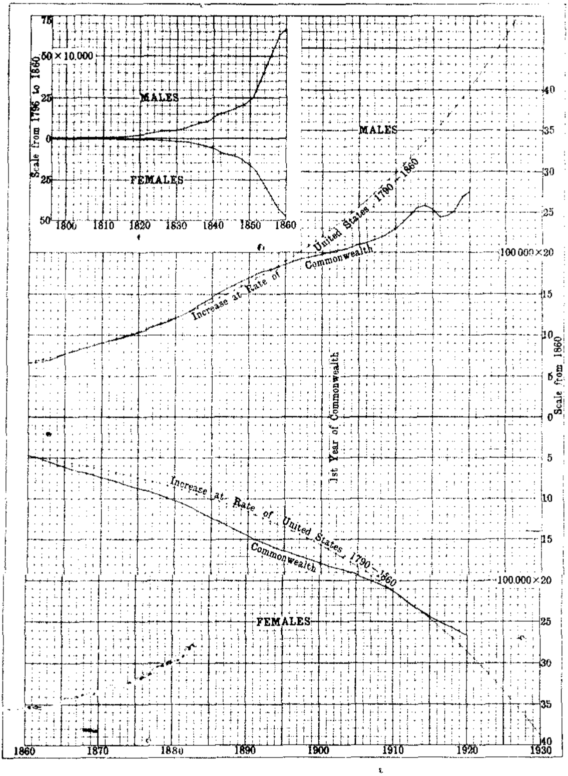
1860 onward.—The base of each small square represents *one* year's interval for both States and Commonwealth, and the vertical height for the States 50,000 persons, and for the Commonwealth 100,000 persons.

In both graphs the zero line for the States is the bottom line; for the Commonwealth it is the line marked "Zero for Commonwealth." The scales on the right above the Commonwealth zero line relate to the Commonwealth, and those on the left relate to the States.

Where the population *falls suddenly the fall denotes the creation of a new colony, e.g., New South Wales* 1825, loses the whole population of Tasmania, then erected into a separate colony.

The curves are as follows:—Commonwealth, an unbroken line; New South Wales, — — — —; *Victoria*, — · — · —; *Queensland*, — — · — — ·; *South Australia*, - - - - - - -; *Western Australia*, — — — — — —; *Tasmania*, — · · — ·; the names on the curves also shew which **State each represents.**

GRAPH OF MALE AND FEMALE POPULATIONS, COMMONWEALTH OF AUSTRALIA, 1796–1920.



(See Tables pages 1120 to 1122.)

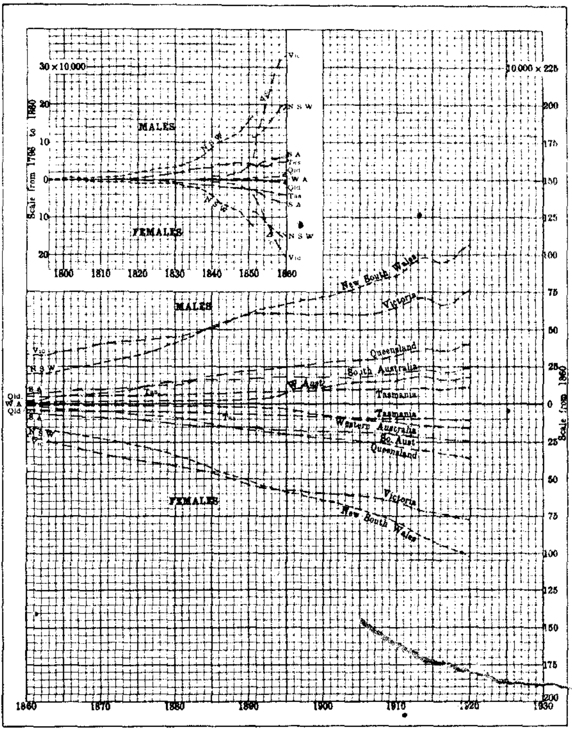
EXPLANATION OF GRAPHS.—1796–1860. The base of each small square represents two years' interval, and the vertical height 50,000 persons. The distances upward from the zero line denote the number of males, and downward the number of females.

1860 onward.—The base of each small square represents one year's interval, and the vertical height 100,000 persons.

From 1860 onward is shewn, for purposes of comparison, the manner in which the numbers of each sex in the Commonwealth would have grown from 1860, if, during that period, there had been in operation the rate of increase actually experienced in the United States from 1790 to 1860.

The asymmetry of the two series of graphs reveals the want of uniformity in the increase of the two sexes.

GRAPHS OF MALE AND FEMALE POPULATION OF THE STATES OF AUSTRALIA, 1796-1920.



(See Table page 1120.)

EXPLANATION OF GRAPHS.—1796–1860. The base of each small square represents two years' interval, and the vertical height 10,000 persons. *The distances upward from the zero line represent the number* of males, and downward the number of females.

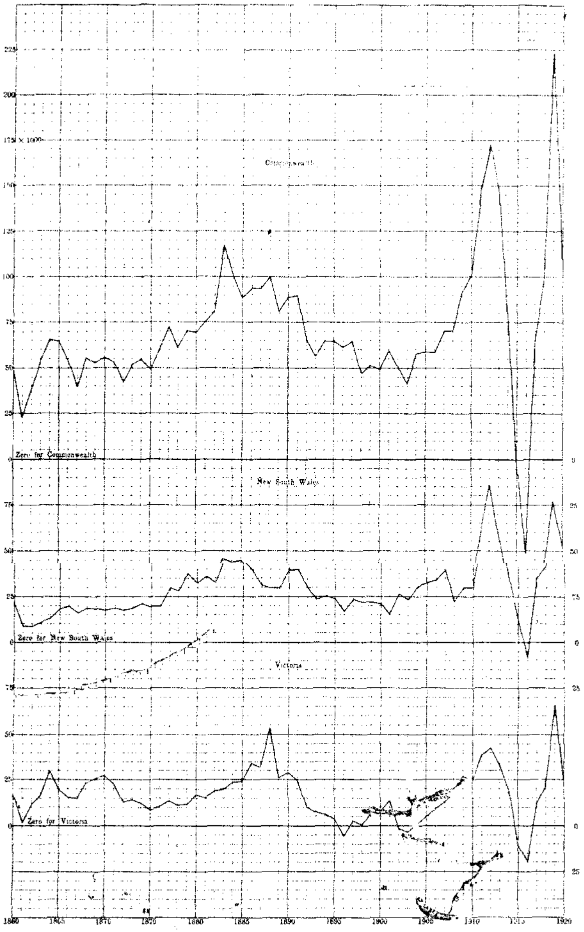
The sudden falls denote the creation of new colonies.

1860 onward.—The base of each small square represents one year's interval, and the vertical height 50,000 persons.

The names on the curves *denote the States to which they refer, and the curves* are as follows :— New South Wales, — — — ; Victoria, — - — - — ; Queensland, — — - - — — - - ; South Australia, — - - — - - - — ; Western Australia, — — — — — - ; Tasmania, — — - — — -.

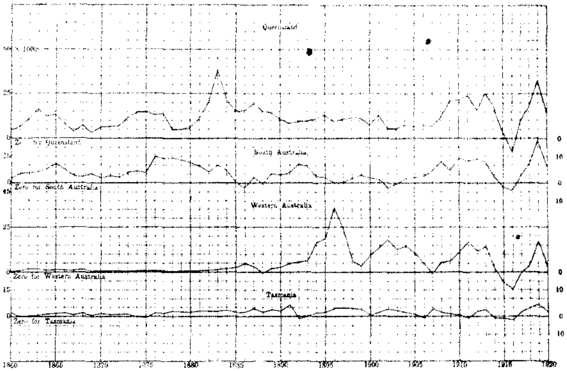
The asymmetry *of the two series of graphs reveals the want of uniformity in the increase of the two* sexes.

GRAPHS SHEWING TOTAL INCREASE OF POPULATION OF THE COMMONWEALTH OF AUSTRALIA AND THE STATES OF NEW SOUTH WALES AND VICTORIA, 1860-1920.



(For explanation see foot of next page.)

GRAPHS SHEWING TOTAL INCREASE OF POPULATION OF THE STATES OF QUEENSLAND, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND TASMANIA, 1860-1920.



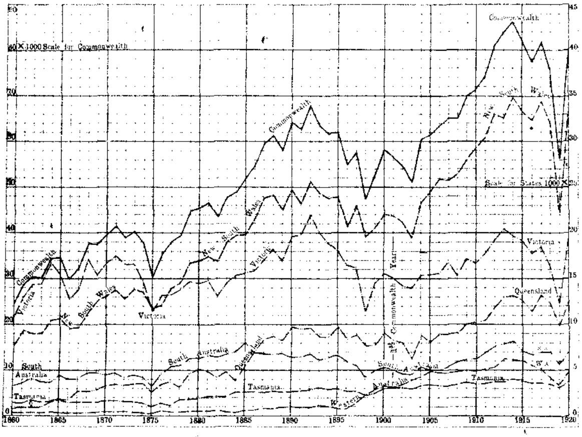
EXPLANATION OF GRAPHS SHEWING TOTAL INCREASE.—The base of each small square represents an interval of a year for both States and Commonwealth; the vertical height represents 5,000 persons for the Commonwealth and the States. *In the first graph (on page 1154) three zero lines are taken (i)* for the Commonwealth, (ii) for New South Wales, and (iii) for Victoria. In the second graph four zero lines are taken (i) for Queensland, (ii) for South Australia, (iii) for Western Australia, and (iv) for Tasmania.

DECREASES in population are shewn by carrying the graph in such cases below the zero line, the distance of the graph below the zero line indicating the extent of the decrease. The scales in these instances are on the right hand of the graph.

The names above the curves denote the States to which they belong.

(See Table page 1141.)

GRAPHS OF NATURAL INCREASE OF THE POPULATION OF THE COMMONWEALTH AND STATES OF AUSTRALIA, 1860-1920.

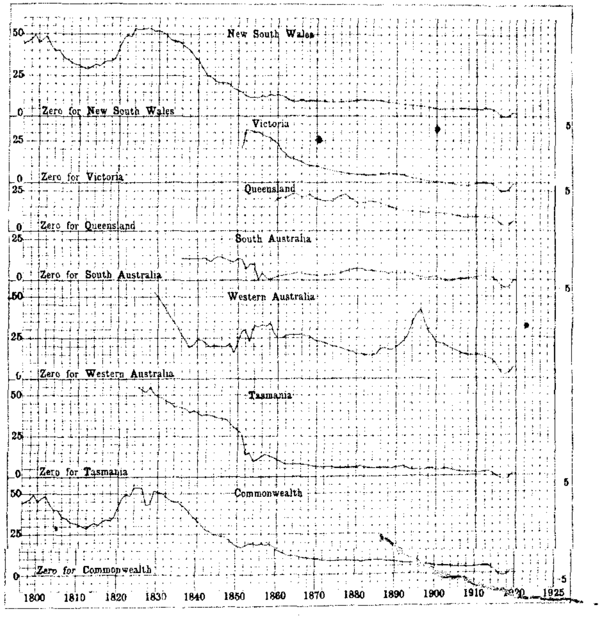


EXPLANATION OF GRAPHS.—The base of each small square represents one year for both States and Commonwealth, and the vertical height 1,000 persons for the States and 2,000 persons for the Commonwealth.

The distances upward from the zero line, marked 0 for both Commonwealth and States, denote the excess of births over deaths. The scale on the left relates to the Commonwealth, and that on the right to the States. The names shew the States to which the curves refer, they are as follows :—Commonwealth ——— ; New South Wales, - - — — - ; Victoria, — - - - — - ; Queensland, — - — - - - — - - ; South Australia, — - - — - - - - ; Western Australia, — — - - - - - — - ; Tasmania, — - — - - — - .

(See Table page 1141.)

GRAPHS SHEWING MASCULINITY OF THE POPULATION OF THE COMMONWEALTH AND STATES OF AUSTRALIA, 1796-1920.

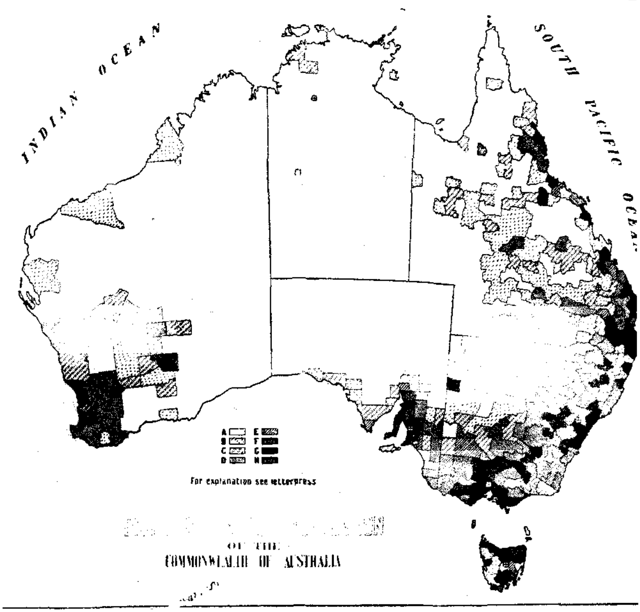


(*See Table page 1125.*)

EXPLANATION OF GRAPHS.—The base of each small square represents an interval of two years and the vertical height an excess of five males per 100 of population. The basic lines (shewn thickened) for Commonwealth and all the States are at zero, equivalent to a numerical equality of the sexes.

It will be noticed that in the case of New South Wales, and the Commonwealth in the years 1916, 1917, and 1918, Victoria in the years 1903 to 1912 and 1914 to 1919, South Australia in the years 1902 to 1904 and 1914 to 1919, and Tasmania for the years 1916 and 1917, the curves are below the zero line, thus shewing an excess of females over males.

DISTRIBUTION OF POPULATION THROUGHOUT THE COMMONWEALTH OF AUSTRALIA, ACCORDING TO CENSUS OF 1911.



The above map furnishes a graphic representation of the distribution of the population of the Commonwealth at the date of the census of 1911. For this purpose the density of the population has been computed *for the counties of each State, and the areas representing these counties* have been shaded in accordance with the following scale of density :—

A—Less than 1 inhabitant in 16 sq. miles
B—From 1 inhabitant in 16 sq. miles to less than 1 in 4 sq. miles
C— ,, 1 ,, 4 ,, ,, 1 in 1 sq. mile
D— ,, 1 ,, 1 sq. mile ,, 2 in 1 ,,
E— ,, 2 inhabitants in 1 ,, ,, 4 in 1 ,,
F— ,, 4 ,, 1 ,, ,, 8 in 1 ,,
G— ,, 8 ,, 1 ,, ,, 16 in 1 ,,
H—16 inhabitants and upwards in 1 sq. mile

The cross within the concentric circles, the centre of which is practically on the longitude of Melbourne and the latitude of Sydney, represents the "centre of gravity" of the population of the Commonwealth, and the cross within the single circle in each State represents the "centre of gravity" of the population of such State.

In Western Australia the proportion of its population of supporting age was larger than in any other State, whilst the corresponding Tasmanian proportion was the lowest for the Commonwealth. On the other hand, in Tasmania the proportion of dependent age was the highest for the Commonwealth, while the Victorian proportion was the lowest. Victoria had the highest and Western Australia the lowest proportion of persons aged 65 years and upwards.

In the Northern Territory the proportions are quite exceptional, the percentage of those of dependent age being much lower, and that for supporting age being much higher, than in any other part of the Commonwealth.

(iii) *Birthplaces.* The following table exhibits, in a very condensed form, the distribution of the population of the several States and Territories according to birthplace :—

BIRTHPLACES OF POPULATION AT CENSUS OF 3rd APRIL, 1911.

(COMMONWEALTH.)

Birthplace.	Population of Commonwealth at Census.								
	States.						Territories.		
	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	Northern.	Federal.	C'wealth.
Australia..	1,377,219	1,108,945	446,695	350,261	209,050	172,497	1,505	1,498	3,667,670
New Z'land	13,963	10,067	2,576	980	3,054	1,200	18	4	31,863
United Kingdom	204,394	157,436	120,015	44,431	50,552	13,472	262	160	590,722
Other European Countries	19,771	15,346	20,227	7,989	9,428	1,134	49	5	73,949
Asia ..	11,463	6,676	8,867	1,244	5,996	778	1,413	5	36,442
Africa ..	1,999	1,498	527	357	423	145	9	..	4,958
America ..	4,424	2,983	1,688	764	1,123	279	12	5	11,278
Polynesia	1,204	279	1,728	55	88	44	12	..	3,410
At Sea ..	1,479	1,303	629	422	281	122	2	..	4,238
Unspecified	*10,818*	*11,018*	*2,861*	*2,049*	*2,119*	*1,540*	*28*	*37*	*30,470*
Total ..	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

The proportions for the several States and Territories for each of the birthplaces shewn in the foregoing table expressed as percentages of the total population, the birthplaces of which were specified, are as follows :—

PERCENTAGE OF COMMONWEALTH POPULATION ACCORDING TO BIRTHPLACE 3rd April, 1911.

Birthplace.	Percentage of Total Population.								
	States.						Territories.		
	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	Northern.	Federal.	C'wealth.
	%	%	%	%	%	%	%	%	%
Australia ..	84.19	85.01	74.09	86.16	74.66	90.95	45.86	89.32	82.90
New Zealand	0.86	0.77	0.43	0.24	1.10	0.63	0.55	0.24	0.72
U. Kingdom	12.49	12.07	10.90	10.93	18.05	7.10	7.98	9.54	13.35
Other E'pean Countries	1.21	1.1[illegible]	3.35	1.97	3.37	0.60	1.49	0.30	1.67
Asia ..	0.7[illegible]	0.[illegible]1	1.47	0.31	2.14	0.41	43.05	0.30	0.82
Africa ..	0.12	[illegible]1	0.09	0.09	0.15	0.08	0.27	..	0.1[illegible]
America ..	0.27	0.2[illegible]	0.28	0.19	0.40	0.15	0.37	0.30	0.25
Polynesia ..	0.07	0.02	0.29	0.01	0.03	0.02	0.37	..	0.08
At Sea ..	0.09	0.10	0.10	0.10	0.10	0.06	0.06	..	0.10
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

As regards distribution in the States according to birthplace, the population of New South Wales is very similar to that of Victoria, the proportions born in the United Kingdom and Asia being slightly higher, and that born in Australia slightly lower, in the case of New South Wales. There is also a rough similarity between the birthplace distributions

of Queensland and Western Australia. In both, the Australian-born represent a much smaller, and those born in the United Kingdom, in "Other European Countries" and in Asia, a much larger proportion than is the case with the remaining States. Polynesians were, however, more numerously represented in Queensland at the date of the Census than in any other State. Natives of New Zealand were, proportionately, most numerous in Western Australia. Tasmania had the largest proportion of Australian born population, viz., 91 per cent., while Queensland, with 74 per cent., had the smallest. On the other hand, nearly 20 per cent. of Queensland's population consisted of natives of the United Kingdom, while only 7 per cent. of the population of Tasmania had been born there. For the Commonwealth as a whole, over 98½ per cent. of the population were from Australasian or European birthplaces.

In the case of the Northern Territory, about 46 per cent. of the population were Australian born, while 43 per cent. were of Asiatic birth.

§ 4. Elements of Growth of Population.

1. **Natural Increase.**—The two factors which contribute to the growth of a population are the "natural increase" by excess of births over deaths, and the "net immigration," *i.e.*, the excess of arrivals over departures. While the relative potency of these factors depends upon a variety of causes, it may be said that, in general, in the case of a new country "net immigration" occupies an important position as a source of increase of population, while in an old country "natural increase," modified more or less by "net emigration," or excess of departures over arrivals, is the principal element causing growth of population. The table hereunder gives the total natural increase, as well as that of males and females :—

NATURAL INCREASE(*a*) OF THE POPULATION OF STATES, TERRITORIES, AND COMMONWEALTH, FROM 1861 TO 1920.

Period.	States.						Territories.		C'wealth.
	N.S.W. (*b*)	Victoria.	Q'land.	S. Aust. (*c*)	W. Aust.	Tas.	Northern. (*d*)	Federal. (*e*)	
				MALES.					
1861 to 1865	22,055	34,286	2,444	9,645	765	3,893	..	..	73,088
1866 to 1870	25,850	34,997	5,739	10,881	754	3,281	..	..	81,502
1871 to 1875	30,067	35,132	6,704	9,979	710	3,077	..	..	85,669
1876 to 1880	34,040	31,985	7,960	13,676	1,023	3,472	..	..	92,156
1881 to 1885	42,658	33,614	7,986	16,969	1,002	5,284	..	..	107,513
1886 to 1890	54,753	39,528	17,872	16,519	1,755	6,093	..	..	136,520
1891 to 1895	56,834	45,606	20,525	15,758	1,436	6,889	..	..	147,048
1896 to 1900	48,692	33,645	17,724	12,562	3,402	6,373	..	..	122,398
1901 to 1905	51,179	34,332	16,628	12,149	8,283	7,955	−223	..	130,303
1906 to 1910	64,127	38,948	21,415	14,500	10,762	8,703	−264	..	158,191
1911 to 1915	77,070	46,[illegible]60	27,497	18,673	12,730	9,386	−201	78	191,393
1916 to 1920	72,030	[illegible]1,388	26,894	16,413	9,787	8,673	−125	75	175,135
1861 to 1920	[illegible]79,355	449,621	179,388	167,724	52,409	73,079	−813	153	1,500,916
				FEMALES.					
1861 to 1865	26,343	39,615	3,566	9,987	1,105	4,608	..	..	85,224
1866 to 1870	30,327	40,919	7,571	11,223	1,301	4,451	..	..	95,792
1871 to 1875	35,567	41,472	9,706	10,944	1,255	4,192	..	..	103,136
1876 to 1880	40,276	37,551	12,291	14,608	1,585	[illegible],699	..	..	111,010
1881 to 1885	50,204	39,833	15,262	18,033	1,738	6,364	..	..	131,434
1886 to 1890	62,090	48,131	24,238	17,320	2,609	7,228	..	..	161,616
1891 to 1895	63,930	53,190	25,757	16,792	[illegible]	7,781	..	..	170,826
1896 to 1900	57,107	40,474	24,037	13,443	7,054	6,[illegible]18	..	..	148,833
1901 to 1905	59,163	39,831	22,910	12,701	11,468	[illegible],027	28	..	154,128
1906 to 1910	71,297	42,629	26,048	14,754	13,354	8,522	33	..	176,637
1911 to 1915	87,074	50,258	33,463	19,318	16,262	9,604	62	78	216,119
1916 to 1920	81,799	42,886	32,273	16,825	13,185	8,821	1[illegible]5	72	195,996
1861 to 1920	665,177	516,789	237,122	175,948	74,292	81,0[illegible]	258	150	1,750,751

(*a*) Excess of births over deaths. (*b*) Including Federal Territory prior to 1911. (*c*) Including Northern Territory prior to 1901. (*d*) Included in South Australia prior to 1901. (*e*) Part of New South Wales prior to 1911.

NOTE.—Minus sign (—) denotes excess of deaths over births.

NATURAL INCREASE (a) OF THE POPULATION

OF STATES, TERRITORIES, AND COMMONWEALTH, FROM 1861 TO 1920—*continued.*

Period.	States.						Territories.		C'wealth.
	N.S.W. (b)	Victoria.	Q'land.	S. Aust. (c)	W. Aust.	Tas.	Northern. (d)	Federal. (e)	
	PERSONS.								
1861 to 1865	48,398	73,901	6,010	19,632	1,870	8,501	..	..	158,312
1866 to 1870	56,177	75,916	13,310	22,104	2,055	7,732	..	..	177,294
1871 to 1875	65,634	76,604	16,410	20,923	1,965	7,269	..	..	188,805
1876 to 1880	74,316	69,536	20,251	28,284	2,608	8,171	..	..	203,166
1881 to 1885	92,862	73,447	23,248	35,002	2,740	11,648	..	..	238,947
1886 to 1890	116,843	87,659	42,110	33,839	4,364	13,321	..	..	298,136
1891 to 1895	120,764	98,796	46,282	32,550	4,812	14,670	..	..	317,874
1896 to 1900	105,799	74,119	41,761	26,005	10,456	13,091	..	..	271,231
1901 to 1905	110,342	74,163	39,538	24,850	19,751	15,982	−195	..	284,431
1906 to 1910	135,424	81,577	47,463	29,254	24,116	17,225	−231	..	334,828
1911 to 1915	164,144	96,418	60,960	37,991	28,992	18,990	−139	156	407,512
1916 to 1920	153,829	84,274	59,167	33,238	22,972	17,494	10	147	371,131
1861 to 1920	1,244,532	966,410	416,510	343,672	126,701	154,094	−555	303	3,251,667

(a) Excess of births over deaths. (b) Including Federal Territory prior to 1911. (c) Including Northern Territory prior to 1901. (d) Included in South Australia prior to 1901. (e) Part of New South Wales prior to 1911.
NOTE.—Minus sign (−) denotes excess of deaths over births.

With two exceptions, viz., Tasmania for the period 1906 to 1910 and the Federal Territory for the period 1916 to 1920, the natural increase of females exceeded that of males throughout the years referred to in the foregoing table. The quinquennial period in which the largest natural increase of population took place was that of 1911-15 with a total for the Commonwealth of 407,512. For the individual States the quinquennia of maximum natural increase were as follows:—New South Wales, Queensland, South Australia, Western Australia, and Tasmania, 1911-15; and Victoria, 1891-5.

2. **Comparison with other Countries.**—Notwithstanding its comparatively low birth-rate, Australia has a high rate of natural increase, owing to the fact that its death-rate is a very low one. The following table furnishes a comparison between the average rates per annum of natural increase for some of the principal countries of the world for which such information is available, and those for the several States of the Commonwealth and the Dominion of New Zealand:—

NATURAL INCREASE PER ANNUM PER 1,000 OF MEAN POPULATION.

(VARIOUS COUNTRIES.)

Country.	Natural Increase per 1,000.	Country.	Natural Increase per 1,000.	Country.	Natural Increase per 1,000.
Australasia (1916-20)—		Europe—*continued.*		Asia—	
Tasmania ..	17.45	Netherlands ..	(h) 12.62	Japan ..	(d) 13.42
Queensland ..	16.71	Germany ..	(d) 12.30	Ceylon ..	(i) 8.92
New South Wales	15.63	Norway ..	(e) 11.82		
Western Australia	14.59	Hungary ..	(b) 11.77	Africa—	
Commonwealth	14.56	Austria ..	(b) 10.64	Union of South Africa (whites only) ..	(h) 17.62
South Australia	14.41	Finland ..	(g) 9.14		
New Zealand ..	12.84	Italy ..	(g) 8.11		
Victoria ..	11.65	Sweden ..	(g) 8.10		
Europe—		Switzerland ..	(f) 7.89	America—	
Bulgaria ..	(a) 17.73	Belgium ..	(b) 7.83	Jamaica ..	(g) 12.56
Rumania ..	(a) 17.21	Scotland ..	(j) 7.68	Canada (Province of Ontario)	(i) 10.27
Serbia	(b) 14.12	Spain ..	(g) 7.59	Province of Quebec ..	(g) 20.09
Prussia ..	(c) 13.63	England & Wales	(j) 6.69	Chile ..	(h) 10.51
Denmark ..	(e) 14.87	Ireland ..	(i) 3.38		
		France ..	(d) 0.43		

(a) 1907–11. (b) 1908–12. (c) 1909–13. (d) 1910–14. (e) 1911–15. (f) 1912–16. (g) 1913–17. (h) 1914–18. (i) 1915–19. (j) 1916–20.

The graphs of natural increase for each of the States, as well as for the Commonwealth, are shewn on page 1136.

3. Net Immigration.—*The other factor of increase in the population, viz., the excess* of arrivals over departures, known as "net immigration," is, from its nature, much more subject to marked and extensive variation than is the factor of "natural increase." These variations are due to numerous causes, many of which have already been referred to in dealing with the influences which affect the growth of population. An important cause, not yet referred to, is that of assisted immigration. The number of persons so introduced varies considerably in different years.

NET IMMIGRATION, OR EXCESS OF ARRIVALS OVER DEPARTURES,

STATES, TERRITORIES, AND COMMONWEALTH, FROM 1861 TO 1920 INCLUSIVE.

Period.	States.						Territories.		Common-wealth.
	N.S.W.	Victoria.	Q'land.	S. Aust. (*a*)	W. Aust.	Tas.	North-ern. (*b*)	Fede-ral. (*c*)	
				MALES.					
1861 to 1865	2,984	−15,871	34,031	10,270	3,213	−2,997	..	..	31,630
1866 to 1870	23,381	13,516	10,190	−242	1,182	−313	..	..	47,714
1871 to 1875	20,346	−8,093	26,236	3,833	−80	−1,916	..	..	40,326
1876 to 1880	48,378	−5,696	13,892	25,056	−179	2,418	..	..	83,869
1881 to 1885	70,996	19,925	54,867	−1,982	2,701	1,860	..	..	148,367
1886 to 1890	29,345	51,894	18,514	−12,895	6,411	2,648	..	..	95,917
1891 to 1895	8,671	−33,192	5,088	−1,493	39,443	−2,857	..	..	15,660
1896 to 1900	−854	−39,805	8,095	−8,239	36,953	2,905	..	..	−945
1901 to 1905	15,671	−37,971	495	−11,031	28,127	−1,771	−697	..	−7,177
1906 to 1910	11,157	9,400	12,291	10,590	711	−5,784	−366	..	37,999
1911 to 1915	38,268	1,518	13,343	−4,249	63	−9,587	1,049	−90	40,315
1916 to 1920	22,933	18,162	3,933	7,931	−3,913	−55	−550	30	48,471
1861 to 1920	291,276	−26,213	200,975	17.549	114,632	−15,449	−564	−60	582,146
				FEMALES.					
1861 to 1865	8,578	21,527	18,824	5,993	952	−1,358	..	..	54,516
1866 to 1870	9,928	16,702	4,851	1,207	517	−500	..	..	32,705
1871 to 1875	9,395	2,498	11,187	774	−18	−2,500	..	..	21,336
1876 to 1880	25,081	−169	7,792	12,977	130	462	..	..	46,273
1881 to 1885	38,867	7,861	27,526	−100	957	562	..	..	75,673
1886 to 1890	23,220	34,337	14,811	−11,310	1,768	−42	..	..	62,784
1891 to 1895	12,793	−13,656	−422	1,964	7,758	−1,705	..	..	6,732
1896 to 1900	−143	−23,777	927	−7,627	32,043	2,009	..	..	3,432
1901 to 1905	1,566	−21,984	−2,398	−8,448	22,293	−726	81	..	−9,616
1906 to 1910	9,390	10	7,780	4,403	1,867	−4,023	−148	..	19,279
1911 to 1915	48,569	25,249	12,545	5,467	10,539	−5,616	273	118	97,144
1916 to 1920	21,162	1,122	3,281	3,931	−4,666	−2,182	48	−34	22,662
1861 to 1920	208,406	49,720	106,704	9,231	74,140	−15,619	254	84	432,920
				PERSONS.					
1861 to 1865	11,562	5,656	52,855	16,263	4,165	−4,355	..	..	86,146
1866 to 1870	33,309	30,218	15,041	965	1,699	−813	..	..	80,419
1871 to 1875	29,741	−5,595	37,423	4,607	−98	−4,416	..	..	61,662
1876 to 1880	73,459	−5,865	21,684	38,033	−49	2,880	..	..	130,142
1881 to 1885	109,863	27,786	82,393	−2,082	3,658	2,422	..	..	224,040
1886 to 1890	52,565	86,231	33,325	−24,205	8,179	2,606	..	..	158,701
1891 to 1895	21,464	−46,848	4,666	471	47,201	−4,562	..	..	22,392
1896 to 1900	−997	−63,582	9,022	−15,866	68,996	4,914	..	..	2,487
1901 to 1905	17,237	−59,955	−1,903	−19,479	50,420	−2,497	−616	..	−16,793
1906 to 1910	20,547	9,410	20,071	14,993	2,578	−9,807	−514	..	57,278
1911 to 1915	86,837	26,767	25,888	1,218	10,602	−15,203	1,322	28	137,459
1916 to 1920	44,095	19,284	7,214	11,862	−8,579	−2,237	−502	−4	71,133
1861 to 1920	499,682	23,507	307,679	26,780	188,772	−31,068	−310	24	1,015,066

(*a*) Including Northern Territory up to 1900. (*b*) Included in South Australia up to 1900. (*c*) Part of New South Wales prior to 1911.

NOTE.—The minus sign (−) signifies that the number of departures was in excess of arrivals.

During the period 1861–1920, viz., 60 years, the gain to the Commonwealth population by excess of arrivals over departures was 1,015.066 persons, while the gain by excess of births over deaths for the same period was 3,251,668. That is, 23.8 per cent. of the increase for the Commonwealth during the past 60 years has been due to "net immigration" and 76.2 per cent. to "natural increase." In regard to the contribution by individual States to the total net immigration of 1,015,066, every State has shewn an increase with the exception of Tasmania, where the loss by emigration has been 31,068.

The quinquennial period in which the greatest net immigration to the Commonwealth occurred was that of 1881–5 with a total of 224,040, whilst in the period 1901–5, the departures exceeded the arrivals by 16,793. The quinquennial periods in which maximum net immigration occurred in the several States were as follows:—New South Wales and Queensland 1881–5, Victoria 1886–90, South Australia 1876–80, Western Australia and Tasmania 1896–1900. In all the States quinquennial periods have occurred in which the departures for the five years have exceeded the arrivals. The periods in which such net emigration from the several States was greatest were as follows:—New South Wales and Victoria 1896–1900, Queensland 1901–5, South Australia 1886–90, Western Australia 1916–1919, and Tasmania 1911–15. In the five years 1916, 1917, 1918, 1919 and 1920 a net immigration of 71,133 was experienced, all the States having contributed to that total except Western Australia and Tasmania, where there was an excess of emigration. The smallness of the gain by immigration during the period 1916–20 was largely due to the restrictions placed on travelling during the war period.

4. **Total Increase.**—The total increase of the population is found by the combination of the natural increase with the net immigration.

In the following table are set out the figures shewing the total increase in each quinquennium from 1861 to 1915 and for the five years 1916 to 1920:—

TOTAL INCREASE OF THE POPULATION OF THE STATES, TERRITORIES, AND COMMONWEALTH FROM 1861 TO 1920.

Period.	States.						Territories.		Commonwealth.
	N.S.W.	Victoria.	Q'land.	S. Aust. (a)	W. Aust.	Tas.	Northern. (b)	Federal. (c)	
				MALES.					
1861 to 1865	25,039	18,415	36,475	19,915	3,978	896	..	..	104,718
1866 to 1870	49,231	48,513	15,929	10,639	1,930	2,968	..	..	129,210
1871 to 1875	50,413	27,039	32,940	13,812	630	1,161	..	..	125,995
1876 to 1880	82,418	26,289	21,852	38,732	844	5,890	..	..	176,025
1881 to 1885	113,654	53,539	62,853	14,987	3,703	7,144	..	..	255,880
1886 to 1890	84,098	91,422	36,386	3,624	8,166	8,741	..	..	232,437
1891 to 1895	65,505	12,414	25,613	14,265	40,879	4,032	..	..	162,708
1896 to 1900	47,838	– 6,16[illegible]	25,819	4,323	40,355	9,278	..	..	121,453
1901 to 1905	66,850	– 3,639	17,123	1,118	36,410	6,184	– 920	..	123,126
1906 to 1910	75,284	48,348	33,706	25,090	11,473	2,919	– 630	..	196,190
1911 to 1915	115,338	47,678	40,840	14,424	12,793	– 201	848	– 12	231,708
1916 to 1920	94,963	59,550	30,827	24,344	5,874	8,618	– 675	105	223,606
1861 to 1920	870,631	423,408	380,363	185,273	167,041	57,630	–1,377	93	2,083,062

(a) Including Northern Territory up to 1900. (b) Included in South Australia up to 1900.
(c) Part of New South Wales prior to 1911.

NOTE.—The minus sign (–) denotes decrease.

TOTAL INCREASE OF THE POPULATION OF THE STATES, TERRITORIES, AND COMMONWEALTH FROM 1861 TO 1920—*continued.*

Period.	States.						Territories.		Commonwealth
	N.S.W.	Victoria.	Q'land.	S. Aust. (a)	W. Aust.	Tas.	Northern. (b)	Federal. (c)	
					FEMALES.				
1861 to 1865	34,921	61,142	22,390	15,980	2,057	3,250	..	..	139,740
1866 to 1870	40,255	57,621	12,422	12,430	1,818	3,951	..	..	128,497
1871 to 1875	44,962	43,970	20,893	11,718	1,237	1,692	..	..	124,472
1876 to 1880	65,357	37,382	20,083	27,585	1,715	5,161	..	..	157,283
1881 to 1885	89,071	47,694	42,788	17,933	2,695	6,926	..	..	207,107
1886 to 1890	85,319	82,468	39,049	6,010	4,377	7,186	..	..	224,400
1891 to 1895	76,723	39,534	25,335	18,756	11,134	6,076	..	..	177,558
1896 to 1900	56,964	16,697	24,964	5,816	39,097	8,727	..	..	152,265
1901 to 1905	60,729	17,847	20,512	4,253	33,761	7,301	109	..	144,512
1906 to 1910	80,687	42,639	33,828	19,157	15,221	4,499	— 115	..	195,916
1911 to 1915	135,643	75,507	46,008	24,785	26,801	3,988	335	196	313,263
1916 to 1920	102,961	44,008	35,554	20,756	8,519	6,639	183	38	218,658
1861 to 1920	873,583	566,509	343,826	185,179	148,432	65,396	512	234	2,183,671
					PERSONS.				
1861 to 1865	59,960	79,557	58,865	35,895	6,035	4,146	..	..	244,458
1866 to 1870	89,486	106,134	28,351	23,069	3,754	6,919	..	..	257,713
1871 to 1875	95,375	71,009	53,833	25,530	1,867	2,853	..	..	250,467
1876 to 1880	147,775	63,671	41,935	66,317	2,559	11,051	..	..	333,308
1881 to 1885	202,725	101,233	105,641	32,920	6,398	14,070	..	..	462,987
1886 to 1890	169,408	173,890	75,435	9,634	12,543	15,927	..	..	456,837
1891 to 1895	142,228	51,948	50,948	33,021	52,013	10,108	..	..	340,266
1896 to 1900	104,802	10,537	50,783	10,139	79,452	18,005	..	..	273,718
1901 to 1905	127,579	14,208	37,635	5,371	70,171	13,485	— 811	..	267,638
1906 to 1910	155,971	90,987	67,534	44,247	26,694	7,418	— 745	..	392,106
1911 to 1915	250,981	123,185	86,848	39,209	39,594	3,787	1,183	184	544,971
1916 to 1920	197,924	103,558	66,381	45,100	14,393	15,257	— 492	143	442,264
1861 to 1920	1,744,214	989,917	724,189	370,452	315,473	123,026	— 865	327	4,266,733

(a) Including Northern Territory up to 1900. (b) Included in South Australia up to 1900. (c) Part of New South Wales prior to 1911.

NOTE.—The minus sign (—) denotes decrease.

As regards the Commonwealth as a whole, the greatest increase in any quinquennium up to 1910 was that for the period 1881–5, viz., 462,987. These figures were, however, closely approached by those for the succeeding quinquennium, viz., 456,837. The rate of increase fell off, however, in the three subsequent quinquennia, the increase for the years 1901–5 being 267,638. In the following quinquennium an improvement set in, the increase in that period being 392,106. This was followed by a further improvement in the quinquennium 1911–15, the first three years of which gave increases of 148,785, 172,933, and 147,298 respectively. In the two succeeding years a falling-off was recorded, but this must be taken as having been caused by the war, there having been an excess of departures over arrivals in the two years of 8,075 and 84,322 respectively. In spite of this adverse influence, the increase for the quinquennium 1911–15 was 544,971, the highest quinquennial increase yet recorded for the Commonwealth. In 1916 the departures exceeded the arrivals by 128,651 and by 17,775 in 1917, but during 1918 and 1919 the excess of arrivals was 23,396 and 166,384 respectively, due mainly to the return of the Australian Imperial Forces. Although in 1920 the increase by migration totalled only 27,779, yet the total increase in population for this decennium was 442,264.

As regards the individual States the maximum increases in any quinquennium are as follows:—New South Wales, 250,981, in 1911–15; Victoria, 173,890, in 1886–90; Queensland, 105,641, in 1881–5; South Australia (including the Northern Territory), 66,317, in 1876–80; Western Australia, 79,452, in 1896–1900; Tasmania, 18,005, in 1896–1900.

As regards the minimum quinquennial increases, it will be seen that they have occurred as under:—New South Wales, 59,960, in 1861-5; Victoria, 10,537, in 1896-1900; Queensland, 28,351, in 1866-70; South Australia, 5,371, in 1901-5; Western Australia, 1,867, in 1871-5; Tasmania, 2,853, in 1871-5.

The graphs shewing net increase, both for the Commonwealth as a whole and for each of the States, will be found on pages 1134 and 1135.

5. **Rates of Increase.**—(i) *Rates for various Countries.* The table hereunder furnishes particulars concerning rates of increase in population for the Commonwealth, its component States, and other countries:—

RATES OF INCREASE IN POPULATION, 1881 TO 1920 (VARIOUS COUNTRIES).

Countries.	Mean Annual Rate of Increase in Population during period—							
	1881 to 1886.	1886 to 1891.	1891 to 1896.	1896 to 1901.	1901 to 1906.	1906 to 1911.	1911 to 1916.	1916 to 1920.
	%	%	%	%	%	%	%	%
AUSTRALASIA—								
Commonwealth ..	3.86	3.06	1.86	1.49	1.38	2.03	1.95	1.61
New South Wales (*a*)	4.83	3.23	1.99	1.57	1.99	2.03	2.61	1.73
Victoria.. ..	2.60	3.12	0.37	0.52	0.18	2.17	1.38	1.34
Queensland ..	8.42	3.80	2.49	2.25	1.35	2.76	2.20	1.75
South Australia (*b*)	1.41	1.15	1.63	0.77	0.27	2.46	1.59	1.87
Western Australia	6.13	5.54	20.81	7.25	6.22	2.43	1.76	1.05
Tasmania ..	2.18	2.87	1.06	1.83	1.33	0.65	0.58	1.61
New Zealand ..	3.31	1.47	2.41	1.98	2.86	2.56	1.61	1.78
EUROPE—								
England and Wales	1.11	1.11	1.15	1.15	1.04	1.04	−0.95	(*i*)1.42
Scotland ..	0.75	0.75	1.06	1.06	0.55	0.56	0.31	(*i*)0.48
Ireland	−0.95	−0.94	−0.60	−0.43	−0.22	−0.06	−0.21	(*i*)0.72
Austria	0.73	0.83	0.79	1.05	0.87	0.86	(*c*) 0.80	..
Belgium ..	1.13	0.75	1.15	0.92	1.26	0.69	(*d*) 0.99	..
Denmark ..	1.05	0.87	0.99	1.32	1.12	1.26	1.20	..
Finland ..	1.42	1.51	1.20	1.41	1.36	1.43	1.18	(*h*)0.06
France	0.34	0.06	0.09	0.24	0.15	0.16	(*d*) 0.12	..
Germany ..	0.74	1.09	1.17	1.51	1.46	1.36	(*e*) 1.24	..
Hungary ..	1.09	1.01	0.92	1.03	0.77	0.84	(*c*) 0.84	..
Italy	0.66	0.71	0.68	0.61	0.52	0.80	1.16	..
Netherlands ..	1.32	1.03	1.28	1.30	1.53	1.22	1.72	(*h*)1.24
Norway ..	0.36	0.54	0.96	1.31	0.52	0.66	(*f*) 0.98	..
Prussia	0.79	1.15	1.29	1.59	1.57	1.48	(*d*) 1.29	..
Rumania ..	1.77	1.34	1.15	1.41	1.46	1.48	(*f*) 2.77	..
Serbia	2.30	2.08	1.37	1.57	1.52	1.55	(*c*) 1.72	..
Spain	0.54	0.48	0.45	0.45	0.52	0.87	0.66	..
Sweden ..	0.57	0.40	0.61	0.86	0.61	0.84	0.70	..
Switzerland ..	0.38	0.40	1.22	1.10	1.28	1.17	0.81	..
ASIA—								
Ceylon	0.54	1.35	1.41	2.03	1.62	1.20	1.71	(*i*)1.06
Japan	0.96	1.12	0.96	1.25	1.29	1.08	1.42	(*h*)1.27
AMERICA								
Canada	1.10	1.08	0.97	1.19	2.99	2.99	(*e*) 3.87	—
Chile	2.97	0.72	2.66	0.90	1.53	1.56	1.66	(*h*)2.11
Jamaica ..	0.77	1.37	1.66	1.72	1.63	0.28	1.36	(*g*)0.62
United States ..	2.27	2.15	1.93	2.02	2.00	1.82	1.67	..

(*a*) Including Federal Territory. (*b*) Including Northern Territory. (*c*) 1911 to 1912. (*d*) 1911 to 1913. (*e*) 1911 to 1914. (*f*) 1911 to 1915 (*g*) 1916 to 1917. (*h*) 1916 to 1918. (*i*) 1916 to 1919.

NOTE.—The minus sign (—) denotes decrease.

(ii) *Variations in the Commonwealth Rate.* During the twenty-five years 1881-'1906 the annual rate of increase in the population of the Commonwealth exhibited a marked decline, falling from an average of 3.86 per cent. for the five years 1881–6 to an average of 1.38 for 1901–6. During the succeeding quinquennium, however, an improvement took place, the rate of increase being 2.03. In the quinquennium 1911–1916 there was a decline owing to the war. As regards the separate States of the Commonwealth, it will be seen that though the rates of increase for the quinquennium 1911–16 were in all cases lower than those for the quinquennia 1881–6 and 1886–91, it is only in the case of Western Australia that the 1911–16 rate represents the minimum for the seven quinquennia under review. During the four years 1916–20 the Commonwealth as a whole experienced a higher rate of increase than for the previous quinquennium.

(iii) *Comparison of Rates of Increase.* It may be noted that the highest rates of increase for the period 1911–16 are those for Canada, Rumania, and the Commonwealth of Australia in the order named. The Netherlands and Serbia rank next in order. ,,

6. **Density of Population.**—From one aspect population may be less significant in respect of its absolute amount than in respect of the density of its distribution. The Commonwealth of Australia, with an area of 2,974,581 square miles, and a population on 31st December, 1920, of 5,472,318, including aboriginals, has a density of only 1.84 persons to the square mile, and is therefore the most sparsely populated of the civilised countries of the world. For the other continents the densities are approximately as follows:—Europe, 123; Asia, 55; Africa, 12; North and Central America, 17; and South America, 8. The population of the Commonwealth has thus about 21 per cent. of the density of that of South America; about 15 per cent. of that of Africa; about 10¾ per cent. of that of North and Central America; about 3⅓ per cent. of that of Asia; and about 1½ per cent. of that of Europe.

Particulars concerning the number and density of the population of the various countries of the world for the latest dates for which such information is available are given in the following table. These figures have in the main been derived from the 1921 issue of the "Statesman's Year Book," and in some instances, more particularly in the case of Africa, must be considered as rough approximations only, complete data not being obtainable. As already mentioned on page 44 *ante* the areas dealt with in the following table are those which prevailed as at the outbreak of war:—

NUMBER AND DENSITY OF THE POPULATION OF THE VARIOUS COUNTRIES OF THE WORLD.

Country.	Population.		Country.	Population.	
	Number.	Density. (*a*)		Number.	Density (*a*)
Continents—			EUROPE—*continued*.		
Europe	475,648,086	123.29	Rumania	7,508,009	140.37
Asia	921,013,628	55.15	Netherlands	6,778,609	537.89
Africa	141,592,841	11.66	Portugal	5,957,985	167.88
North & Central America and the West Indies	144,962,480	16.97	Sweden	5,813,850	33.60
South America ..	63,520,823	8.64	Bulgaria & E. Roumelia	5,517,700	115.55
Australasia & Polynesia	8,745,859	2.53	Greece (including Crete)	4,821,300	114.98
			Serbia	4,615,567	136.19
			Switzerland	3,937,000	246.43
Total	1,755,483,717	33.72	Finland	3,329,146	26.07
			Denmark (incl. Iceland)	3,032,891	54.85
			Norway	2,632,010	21.12
Europe—			Turkey	1,891,000	173.77
Russia (including Poland			Albania	850,000	73.91
Ciscaucasia) ..	149,884,230	75.04	Montenegro	436,789	74.28
Germany	64,114,100	307.04	Luxemburg	263,824	264.08
Austria-Hungary (incl.			Malta	224,655	1,903.85
Bosnia & Herzegovina)	52,290,566	200.15	Monaco	22,956	2,869.50
United Kingdom ..	47,000,700	386.41	Gibraltar	17,964	6,982.00
France	39,601,509	191.26	San Marino	11,944	314.32
Italy	36,740,000	332.09	Liechtenstein ..	10,716	164.86
Spain (incl. Canary and			Andorra	5,231	27.39
Balearic Islands) ..	20,695,691	108.89			
Belgium	7,642,054	671.94	Total	475,648,086	123.29

(*a*) Number of persons per square mile.

NUMBER AND DENSITY OF THE POPULATION OF THE VARIOUS COUNTRIES OF THE WORLD—*continued.*

Country.	Population. Number.	Population. Density. (*a*)
Asia—		
China & Dependencies ..	340,653,000	87.04
British India	244,267,542	223.47
Feudatory Indian States	80,292,536	304.17
Japan & Dep. (incl. Korea)	77,894,540	298.13
Dutch East Indies ..	46,800,000	80.25
Russia in Asia ..	29,141,320	4.39
Arabia (Independent) ..	12,000,000	12.00
Persia	9,500,000	15.13
Philippine Islands ..	9,000,000	78.67
Siam	8,924,000	45.76
Turkey in Asia ..	8,435,900	34.12
Afghanistan	6,380,500	26.04
Tonking	6,119,720	131.89
Nepal	5,600,000	103.70
Annam	5,200,000	99.81
Ceylon	4,686,383	183.92
Syria	3,133,000	29.35
Cochin China ..	3,050,785	138.75
Mesopotamia	2,849,282	19.89
Smyrna	2,500,000	96.90
Armenia	2,159,000	82.62
Cambodia	1,634,252	36.32
Federated Malay States	1,280,000	46.54
Bokhara	1,250,000	15.06
Malay Protectorate ..	899,937	38.32
Straits Settlements ..	846,083	528.80
Borneo and Sarawak ..	808,183	11.06
Palestine	675,000	49.18
Khiva	646,000	26.92
Laos	640,877	6.54
Hong Kong & Territory	561,500	1,436.06
Goa	515,772	351.10
Oman	500,000	6.10
Timor, &c.	377,815	51.54
Cyprus	311,108	86.80
French India	266,064	1,357.47
Bhutan	250,000	12.50
Kurdistan	241,000	5.26
Kwang Chau Wan ..	*168,000*	*884.21*
Wei-hai-wei	147,177	516.41
Bahrein Islands ..	103,000	412.00
Macao, &c.	74,866	18,716.50
Maldive Islands ..	70,000	608.70
Aden & Dependencies ..	46,165	5.13
Damao and Diu ..	32,700	193.49
Brunei	32,000	8.00
Andaman and Nicobar Islands	25,604	8.55
Socotra & Kuria Muria Is.	12,000	8.68
Tientsin	*10,017*	*50,085.00*
Total	921,013,628	55.15
Africa—		
Belgian Congo ..	16,750,000	50.45
Northern and Southern Nigeria Protectorate	16,500,000	49.11
Egypt	12,750,918	36.43
French Equat. Africa ..	*9,000,000*	*13.39*
Abyssinia	8,000,000	22.86
East Africa (late German)	7,659,898	19.94
Union of South Africa ..	6,121,842	12.94
Upper Senegal and Niger	5,646,409	9.93
Morocco	5,597,560	9.85
Algeria	5,563,828	25.04
Angola	5,000,000	9.67
Madagascar & adjacent islands	3,545,264	15.55
Sudan	3,400,000	3.35
Uganda Protectorate ..	*3,316,271*	*30.08*
Portuguese East Africa	3,120,000	7.29
British East Africa Prot.	2,807,000	11.37
AFRICA—continued.		
Kamerun (late German)	2,100,000	13.28
Tunis	1,940,000	38.80
French Guinea ..	1,812,579	19.40
Liberia	1,800,000	45.00
Rhodesia	1,699,400	3.84
Ivory Coast	1,662,023	12.49
Gold Coast and Protect.	1,503,386	16.79
Sierra Leone and Protect.	1,444,621	19.52
Senegal	1,247,979	16.86
Nyassaland Protectorate	1,218,238	30.78
Togoland	1,032,088	30.63
Portuguese Guinea ..	1,000,000	40.00
Dahomey	900,000	23.07
Military Territory of the Niger (French) ..	850,094	1.69
French Sahara ..	800,000	0.52
Rio de Oro & Adrar ..	800,000	7.33
Italian Somaliland ..	650,000	4.66
Tripoli and Benghazi ..	600,000	14.78
Eritrea	450,000	9.83
S. W. Africa (late German)	440,000	13.20
Basutoland	404,507	34.53
Mauritius and Depend.	384,951	475.84
British Somaliland ..	300,000	4.41
Mauretania	256,164	0.72
French Somali Coast, &c.	208,061	4.62
Gambia & Protectorate	208,000	40.18
Rio Muni & C. San Juan	200,000	21.12
Zanzibar	196,733	192.88
Réunion	173,822	179.20
Cape Verde Islands ..	149,793	101.21
Bechuanaland Protect.	125,350	0.46
Swaziland	99,959	14.97
Comoro Islands ..	84,117	129.41
Spanish N. & W. Africa	71,276	819.27
St. Thomas & Prince Is.	42,103	92.74
Seychelles	24,572	157.51
Fernando Po, &c. ..	14,611	12.20
Mayotte	*13,500*	*96.43*
St. Helena	3,654	77.74
Ascension	250	7.35
Total	141,592,841	11.66
North & Central America & West Indies—		
United States	105,253,300	35.39
Mexico	15,501,684	20.21
Canada	*8,835,000*	*2.37*
Cuba	2,808,905	65.64
Haiti	2,500,000	245.00
Guatemala	2,003,579	41.49
Salvador	1,238,621	98.56
Porto Rico	1,184,489	328.48
San Domingo	955,159	49.41
Jamaica	891,040	211.80
Nicaragua	746,000	15.16
Honduras	609,997	13.78
Costa Rica	459,423	19.97
Trinidad and *Tobago* ..	381,309	193.17
Newfoundl'd & Labrador	258,680	1.50
Guadeloupe and Depend.	212,430	294.28
Martinique	193,087	501.52
Barbados	191,664	1,154.60
Windward Islands ..	179,414	340.44
Leeward Islands ..	127,193	177.89
Bahamas	59,928	13.61
Curaçao	57,195	141.92
Alaska	55,000	0.08
British Honduras ..	42,868	4.93
Virgin Island of U.S.A. (*b*)	26,051	197.36
Bermudas	21,840	1,149.47
Greenland	13,449	0.29

NUMBER AND DENSITY OF THE POPULATION OF THE VARIOUS COUNTRIES OF THE WORLD—*continued.*

Country.	Population. Number.	Density. (a)	Country.	Population. Number.	Density. (a)
NORTH & CENTRAL AMERICA & WEST INDIES—*contd.*			**Australasia & Polynesia—**		
Turks & Caicos Islands	5,615	25.07	C'wealth of Australia ..	(b)5,472,318	1.84
Cayman Islands ..	*5,428*	*60.99*	*New Zealand*	*(c)1,257,405*	*12.06*
St. Pierre & Miquelon ..	4,652	50.02	Kaiser Wilhelm Land ..	530,000	75.71
			Papua	251,287	2.78
Total	144,962,480	16.97	Hawaii	250,627	38.86
			Dutch New Guinea ..	200,000	1.32
South America—			Solomon Islands ..	167,660	16.85
Brazil (incl. Acre) ..	30,492,275	9.31	Fiji	163,416	23.07
Argentine Republic ..	8,279,150	7.18	Bismarck Archipelago ..	88,000	5.59
Colombia (excl. Panama)	5,071,101	11.50	New Caledonia and Dependencies ..	72,008	8.42
Peru	4,620,201	6.40			
Chile	3,945,538	13.61	New Hebrides ..	70,000	13.73
Bolivia	2,880,970	5.32	Caroline & Pelau Islands	55,264	98.69
Venezuela	2,844,618	7.24	Samoa (late German) ..	41,128	41.13
Ecuador	2,000,000	17.24	French Establishments in Oceania	31,477	20.71
Uruguay	1,429,585	19.81			
Paraguay	1,050,000	6.36	Gilbert & Ellice Islands	31,018	140.13
Panama	450,000	13.89	Tonga	23,766	61.73
British Guiana ..	310,972	3.48	Marshall Islands ..	15,179	101.19
Dutch Guiana ..	107,827	2.34	Guam	14,344	63.75
French Guiana ..	26,325	0.82	Samoa (American) ..	7,550	74.02
Falkland Islands and South Georgia ..	3,252	0.42	Marianne Islands ..	2,646	10.58
			Norfolk Island ..	766	58.92
Total	63,520,823	8.64	Total	8,745,859	2.53

(a) Number of persons per square mile. (b) Inclusive of an allowance of 60,000 for Aboriginal Natives. (c) Inclusive of Maoris and population of Cook and other Pacific Islands.

§ 5. Seasonal Variations of Population.

1. **Natural Increase.**—For the Commonwealth as a whole the natural increase of the population is greatest in the quarter ending 30th September, and least in that ending 30th June. The birth rate is usually at its highest, and the death rate at its lowest, in the September quarter. The average natural increase in population of the several States for each of the quarters, based upon the experience of the ten years 1911 to 1920, is given in the following table, from which it will be seen that the quarter in which the rate of natural increase was highest is that ended 31st March for New South Wales, that ended 30th June for Queensland, that ended 30th September for South Australia and Western Australia, and that ended 31st December for Victoria and Tasmania. The quarters shewing lowest rate of natural increase were that ended 30th June for New South Wales, Victoria and Tasmania, and that ended 31st December, for the three remaining States.

AVERAGE QUARTERLY NATURAL INCREASE, STATES, TERRITORIES AND COMMONWEALTH, 1911 TO 1920.

State or Territory.	(a) Average Natural Increase for Quarter ended on last day of— March.		June.		September.		December.		Average Natural Increase per Annum, 1911–20.	
	Persons.	°/°°	Persons.	°/°°	Persons.	°/°°	Persons.	°/°°	Persons.	°/°°
New S. Wales	8,131	4.38	7,650	4.10	8,044	4.28	7,373	4.22	31,798	17.14
Victoria ..	4,504	3.20	4,462	3.16	4,470	3.16	4,632	3.26	18,068	12.85
Queensland ..	2,933	4.38	3,103	4.60	3,075	4.49	2,903	4.21	12,014	17.92
S. Australia ..	1,762	3.98	1,822	4.11	1,826	4.11	1,712	3.83	7,122	16.09
W. Australia ..	1,306	4.24	1,310	4.23	1,346	4.31	1,234	3.92	5,196	16.84
Tasmania ..	899	4.53	865	4.39	917	4.68	967	4.93	3,648	18.37
N. Territory ..	−6	−1.48	−1	−0.24	1	0.24	−6	−1.42	−12	−2.96
F. Territory ..	8	4.04	6	2.50	9	3.74	7	2.89	30	15.17
Commonwealth	19,537	4.00	19,217	3.91	19,688	3.99	19,422	3.91	77,864	15.93

(a) The symbol °/°° denotes "per thousand."

2. **Net Immigration.**—For the Commonwealth as a whole for the decennium 1911-20, arrivals exceeded departures in each quarter. New South Wales experienced excesses of arrivals in each quarter, Victoria, Queensland, and Western Australia in three of the four quarters, South Australia in two, and Tasmania in one only. Particulars concerning the average net immigration of the several States and Territories are as follows :—

AVERAGE QUARTERLY NET IMMIGRATION, STATES, TERRITORIES AND COMMONWEALTH, 1911 TO 1920.

State or Territory.	Quarter ended on last day of—								Average Net Immigration per annum, 1911-20.	
	March.		June.		September.		December.			
	Persons.	°/°°	Persons.	°/°°	Persons.	°/°°	Persons.	°/°°	Persons.	°/°°
N.S.W.	4,478	2.41	2,682	1.44	4,616	2.46	1,317	0.70	13,093	7.06
Victoria	1,852	1.32	− 1,227	− 0.87	1,439	1.02	2,541	3.24	4,605	3.27
Q'land	1,974	2.95	5,857	8.67	1,765	2.58	− 6,286	− 9.12	3,310	4.94
S. Aust.	− 898	− 2.03	− 670	− 1.51	943	2.19	1,902	4.25	1,307	2.95
W. Aust.	116	0.38	1,070	3.45	848	2.72	− 1,831	− 5.82	203	0.66
Tas. ..	− 2,183	− 11.00	− 2,312	− 11.72	− 624	− 3.19	3,376	17.22	− 1,743	− 8.78
N.T. ..	55	13.54	90	21.89	20	4.77	− 84	− 19.90	81	19.94
F.C.T.	418	211.32	1	0.42	− 22	− 9.14	− 394	− 162.88	3	1.52
C'wealth	5,812	1.19	5,491	1.12	9,015	1.83	541	0.11	20,859	4.27

NOTE.—The minus sign (−) denotes that the departures were in excess of arrivals, and "°/°°" denotes "per thousand" of population.

§ 6. Urban Population.

1. **The Metropolitan Towns.**—A feature of the distribution of population in Australia is the tendency to accumulate in the capital cities. To such an extent is this metropolitan aggregation carried, that in every State the population of the capital far outnumbers that of any other town therein, and ranges between 20 and 55 per cent. of the entire population of the State. The populations of the several capitals at the Census of the 4th of April, 1921, and the percentages of such populations on the totals for the respective States, are shown in the table hereunder. As might be expected, the proportion of males resident within the metropolitan areas of the Commonwealth is less than that for females. Of the total male population of the Commonwealth 40.44 per cent. live in the capital cities, while the corresponding figure for females is 45.83 per cent. That this metropolitan concentration is phenomenal may be readily seen by comparing the percentage on the total population with the similar figures for the principal countries of Europe, also given in the table hereunder :—

METROPOLITAN POPULATION.

(VARIOUS COUNTRIES.)

State or Country.	Metropolis.	Year.	Population.	Percentage on total of State or Country.
				%
New South Wales ..	Sydney	4th April, 1921.	899,099	42.89
Victoria	Melbourne	4th April, 1921.	766,506	50.09
Queensland.. ..	Brisbane	4th April, 1921.	210,032	27.80
South Australia ..	Adelaide	4th April, 1921.	255,481	51.63
Western Australia ..	Perth	4th April, 1921.	154,866	47.04
Tasmania	Hobart	4th April, 1921.	52,391	24.54
Commonwealth ..	(6 Cities)	4th April, 1921.	2,338,375	43.10
New Zealand ..	Wellington ..	1919	100,898	8.67
Denmark	Copenhagen ..	1916	605,772	20.02
England	London (a) ..	1914	4,518,021	12.22
Saxony	Dresden	1914	551,697	11.07
Norway	Christiania	1918	259,445	9.86

(a) Population of Greater London in 1914 was 7,419,794.

METROPOLITAN POPULATION.

(VARIOUS COUNTRIES)—*continued.*

State or Country.	Metropolis.	Year.	Population.	Percentage on total of State or Country.
				%
Netherlands ..	Amsterdam ..	1917	640,993	9.54
Ireland	Dublin	1911	403,030	9.18
Belgium	Brussels	1912	663,647	8.77
Bavaria	Munich	1910	596,467	8.66
Portugal	Lisbon	1911	435,359	7.31
France	Paris	1911	2,888,110	7.29
Sweden	Stockholm	1918	413,163	7.12
Austria	Vienna	1910	2,031,498	7.11
Scotland	Edinburgh	1918	333,883	6.83
Greece	Athens	1907	167,479	6.36
Prussia	Berlin	1916	1,779,107	4.33
Hungary	Budapest	1910	880,371	4.22
Spain	Madrid	1917	648,760	3.11
Switzerland ..	Berne	1915	96,900	2.50
Russia (European) ..	Petrograd	1915	2,318,645	1.76
Italy	Rome	1915	590,960	1.64

2. **Urban Population Generally.**—In connexion with the particulars shewing the tendency in Australia to concentrate population in the metropolis, it should be borne in mind that in most of the European States the capital is but one of many populous cities, and in some instances is by no means the most populous. In Australia, on the other hand, the metropolis is in every instance the most populous city, and, in some of the States, is also the only town of considerable magnitude.

In the following table will be found particulars of the Principal Urban Incorporated Areas in the Commonwealth returned at the date of the Census, on 4th April, 1921, as having a population of over 3,000. From this it will be seen that there were, in all, 50 localities in the Commonwealth returned as having a population upwards of 20,000. Of these 19 were in New South Wales, 18 in Victoria, 7 in Queensland, 3 in South Australia, 1 in Western Australia, and 2 in Tasmania.

By the term " Urban Incorporated Areas " is meant those urban districts which have been incorporated for municipal purposes. The populations shewn in each case are those recorded within the municipal boundaries.

POPULATION OF THE PRINCIPAL URBAN INCORPORATED AREAS IN THE COMMONWEALTH, 4th APRIL, 1921.

Town.	State in which Situated.	Approx Population.	Town.	State in which Situated.	Approx. Population.
100,000 and over—			20,000 and under 50,000—*continued.*		
Sydney	N.S.W.	104,182			
Melbourne	Vic.	103,269	Caulfield	Vic.	40,692
			Collingwood	,,	34,243
50,000 and under 100,000—			Essendon	,,	35,260
Perth	W.A.	64,174	Fitzroy	,,	34,938
Prahran	Vic.	50,288	Footscray	,,	33,772
Randwick	N.S.W.	50,831	Glebe	N.S.W.	22,757
			Hawthorn	Vic.	29,178
20,000 and under 50,000—			Hobart	Tas.	43,615
Adelaide	S.A.	39,562	Ipswich	Qld.	20,526
Aŝhfield	N.S.W.	33,657	Ithaca	,,	20,919
Ballarat	Vic.	21,216	Launceston	Tas.	24,318
Balmain	N.S.W.	32,124	Leichhardt	N.S.W.	29,358
Bendigo	Vic.	25,693	Malvern	Vic.	32,308
Brighton	,,	21,243	Marrickville	N.S.W.	42,264
Brisbane	Qld.	42,636	Melbourne South ..	Vic.	46,879
Brisbane South	,,	37,172	Mosman	N.S.W.	20,051
Broken Hill	N.S.W.	26,337	Newtown	,,	28,179
Brunswick	Vic.	44,476	Northcote	Vic.	30,513
Camberwell	,,	23,844	Paddington	N.S.W.	26,859
Canterbury	N.S.W.	37,621	Petersham	,,	26,234

POPULATION OF THE PRINCIPAL URBAN INCORPORATED AREAS IN THE COMMONWEALTH, 4TH APRIL, 1921—*continued*.

Town.	State in which Situated.	Approx. Population.
20,000 and under 50,000—*con.*		
Port Adelaide	S.A.	30,118
Redfern	N.S.W.	23,945
Richmond	Vic.	43,174
Rockdale	N.S.W.	25,178
Rockhampton	Qld.	24,182
St. Kilda	Vic.	38,593
Sydney North	N.S.W.	48,444
Toowoomba	Qld.	20,702
Townsville	,,	21,348
Unley	S.A.	34,111
Waverley	N.S.W.	36,788
Willoughby	,,	28,087
Woollahra	,,	25,409
10,000 and under 20,000—		
Annandale	N.S.W.	12,657
Auburn	,,	13,565
Ballarat East	Vic.	13,456
Bankstown	N.S.W.	10,662
Bexley	,,	14,738
Burwood	,,	15,733
Coburg	Vic.	18,112
Concord	N.S.W.	11,002
Drummoyne	,,	18,762
Fremantle	W.A.	17,555
Geelong	Vic.	14,818
Goulburn	N.S.W.	12,667
Granville	,,	13,320
Hamilton	,,	14,196
Hindmarsh	S.A.	12,461
Hurstville	N.S.W.	13,398
Illawarra, Central & North	,,	11,551
Kew	Vic.	17,382
Kogarah	N.S.W.	18,214
Lidcombe	,,	10,517
Lithgow	,,	13,276
Manly	,,	18,515
Maryborough	Qld.	10,635
Mascot	N.S.W.	10,930
Newcastle	,,	14,555
Norwood & Kensington	S.A.	15,010
Parramatta	N.S.W.	14,602
Port Melbourne	Vic.	13,100
Ryde	N.S.W.	14,865
Sandringham	Vic.	11,306
St. Peters	N.S.W.	12,708
St. Peters	S.A.	11,104
Subiaco	W.A.	13,650
Thebarton	S.A.	14,037
Toowong	Qld.	10,008
Waratah	N.S.W.	12,191
Waterloo	,,	11,199
Wickham	,,	12,149
Windsor	Qld.	18,262
Williamstown	Vic.	19,445
5,000 and under 10,000—		
Albury	N.S.W.	7,746
Alexandria	,,	9,794
Armidale	,,	5,309
Bathurst	,,	9,442
Botany	,,	6,210
Boulder	W.A.	8,218
Bundaberg	Qld.	9,276
Cairns	,,	7,455
Carrum	Vic.	5,216
Castlemaine	,,	5,330
Charters Towers	Qld.	9,499
Claremont	W.A.	5,508
Cottesloe	,,	5,431
Dubbo	N.S.W.	5,031
Enfield	,,	8,527
Erskineville	,,	7,552
Geelong West	Vic.	9,638
Glenelg	S.A.	7,998
Glenorchy	Tas.	6,348
Grafton and Grafton South	N.S.W.	6,075
Gympie	Qld.	6,515
Hamilton	,,	8,874
5,000 and under 10,000—*cont.*		
Hamilton	Vic.	5,098
Hunter's Hill	N.S.W.	7,300
Kalgoorlie	W.A.	7,898
Katoomba	N.S.W.	9,052
Lane Cove	,,	7,590
Lismore	,,	8,679
Liverpool	,,	6,295
Mackay	Qld.	6,320
Maitland West	N.S.W.	8,459
Mentone and Mordialloc	Vic.	5,670
Merewether	N.S.W.	5,908
Mildura	Vic.	5,100
Mount Morgan	Qld.	7,214
Newtown and Chilwell	Vic.	7,233
Oakleigh	,,	6,076
Orange	N.S.W.	7,399
Port Pirie	S.A.	9,808
Prospect and Sherwood	N.S.W.	8,732
Sandgate	Qld.	6,277
Smithfield and Fairfield	N.S.W.	5,301
Strathfield	,,	7,594
Tamworth	,,	7,265
Wagga Wagga	,,	7,676
Wallsend	,,	6,444
Warrnambool	Vic.	7,739
Warwick	Qld.	6,095
Wollongong	N.S.W.	6,707
Wonthaggi	Vic.	5,176
Wynnum	Qld.	8,357
3,000 and under 5,000—		
Adamstown	N.S.W.	3,958
Albany	W.A.	3,980
Ararat	Vic.	4,657
Bunbury	W.A.	4,478
Canley Vale	N.S.W.	3,108
Carrington	,,	3,118
Casino	,,	3,453
Collie	W.A.	3,314
Cootamundra	N.S.W.	3,528
Cowra	,,	3,717
Darlington	,,	3,648
Daylesford	Vic.	3,330
Dundas	N.S.W.	3,520
Eaglehawk	Vic.	4,719
Echuca	,,	3,745
Forbes	N.S.W.	4,379
Fremantle East	W.A.	4,424
,, North	,,	3,547
Geraldton	,,	4,176
Glen Innes	N.S.W.	4,978
Henley and Grange	S.A.	3,980
Horsham	Vic.	3,788
Inverell	N.S.W.	4,366
Junee	,,	3,563
Kempsey	,,	3,609
Lambton	,,	3,694
Lambton, New	,,	3,540
Maitland East	,,	3,545
Maryborough	Vic.	4,747
Midland Junction	W.A.	4,935
Moree	N.S.W.	3,020
Mount Gambier	S.A.	3,968
Mudgee	N.S.W.	3,168
Northam	W.A.	3,583
Parkes	N.S.W.	3,947
Penrith	,,	3,595
Roma	Qld.	3,247
Sale	Vic.	3,768
Singleton	N.S.W.	3,269
Southport	Qld.	3,543
Stawell	Vic.	4,411
Stockton	N.S.W.	4,600
Temora	,,	3,048
Vaucluse	,,	3,717
Wallaroo	S.A.	3,308
Wangaratta	Vic.	3,692
Wellington	N.S.W.	3,929
Windsor	,,	3,807
Young	,,	3,278

For the purpose of providing a comparison of the populations of the several States and Territories, the following table has been compiled from the 1921 Census data, shewing the population of each State and Territory divided into four distinct sections, viz. :— Urban Metropolitan, Urban Provincial, Rural, and Migratory, and the percentage of each section on the total population for the State or Territory :—

URBAN AND RURAL POPULATION OF AUSTRALIA, 4th APRIL, 1921.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

(Subject to revision.)

Particulars.	States.						Territories.		Total Commonwealth.
	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Federal Capital Territory.	
	NUMBER.								
Urban—									
Metropolitan	899,099	766,506	210,032	255,481	154,866	52,391	..	..	2,338,375
Provincial ..	524,698	187,524	183,816	42,801	42,562	49,142	1,398	..	1,031,941
Rural ..	664,453	571,747	360,500	193,963	129,764	111,692	2,407	2,563	2,037,089
Migratory ..	11,513	5,752	3,286	3,091	5,021	652	65	9	29,389
Total ..	2,099,763	1,531,529	757,634	495,336	332,213	213,877	3,870	2,572	5,436,794
	PERCENTAGE ON TOTAL.								
Urban —									
Metropolitan	42·82	50·05	27·72	51·58	46·62	24·50	..	..	43·01
Provincial ..	24·99	12·24	24·26	8·64	12·81	22·98	36·12	..	18·98
Rural.. ..	31·64	37·33	47·58	39·16	39·06	52·22	62·20	99·65	37·47
Migratory ..	0·55	0·38	0·44	0·62	1·51	0·30	1·68	0·35	0·54
Total ..	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00

For the Commonwealth as a whole 61.99 per cent. of the population is urban, this percentage being exceeded by New South Wales, 67.81 per cent., and Victoria, 62.29 per cent. Tasmania, with 47.48 per cent., has the smallest percentage of urban population in all the States.

§ 7. Assisted Immigration.

In the earlier days of settlement in Australia, State-assisted immigration played an important part. Such assistance ceased for the time being in Victoria in 1873, in South Australia in 1886, and in Tasmania in 1891. In New South Wales, general State-aided immigration was discontinued in the year 1887, but those who arrived under that system and were still residing in New South Wales might, under special regulations, send for their wives and families. A certain amount of passage money, graduated according to the age of the immigrant, was required to be paid in each case. Under the provisions of these regulations, immigrants to the number of 1994 received State assistance during the years 1888 to 1899 inclusive. From 1900 to 1905 no assistance of any kind was

given, but from 1906 onwards assistance has again been afforded. In Queensland and Western Australia, such assistance, although varying considerably in volume from year to year, has been accorded for many years past. Assistance to immigrants, which in the case of Victoria had practically ceased in 1873, has recently been again afforded. In South Australia the principle of State assistance was again introduced in 1911, and in Tasmania in 1912.

The number of assisted immigrants for the years 1914 to 1920, and the total from the earliest times up to the end of 1920, are given in the following table :—

ASSISTED IMMIGRANTS DURING THE YEARS 1914 TO 1920, AND UP TO THE END OF 1920.

STATES AND COMMONWEALTH.

State	N.S.W.	Victoria.	Qld.	S. Aust.	W.A.	Tas.	C'wlth.
No. Assisted during 1914	6,655	7,496	4,096	644	1,729	185	20,805
" " " 1915	1,695	1,724	1,599	79	635	64	5,796
" " " 1916	649	327	300	..	103	18	1,397
" " " 1917	239	146	91	..	26	2	504
" " " 1918	199	101	100	..	26	..	426
" " " 1919	67	139	39	..	..	..	245
" " " 1920	3,211	2,763	1,272	..	1,499	314	9,059
Total to end of 1920 ..	275,212	189,657	215,458	102,707	43,320	22,497	848,851

§ 8. Enumerations and Estimates.

1. **Musters.**—Actual enumerations of Australia's population, of varying accuracy, have been made from the earliest times onward. These were originally known as "Musters," and were first undertaken with a view to estimating the food and other requirements of the settlements. They appear to have been very unreliable, and to have been carried out at least annually from 1788 to 1825, when they were discontinued.

2. **Census-taking.**—The first regular Census in Australia was that of New South Wales, in November, 1828. The dates on which Censuses have been taken in the several States, and the populations enumerated thereat, are shewn in the table on page 1155.

3. **The Census of 1901.**—A conference of the Government Statisticians of Australia and New Zealand was held in Sydney in February and March, 1900, with the object of securing uniformity in the collection and compilation of the Census of 1901. The householder's schedule which it drafted made provision for the collection of information in all the States under the following heads, viz. :—Name, Sex, Age, Conjugal Condition, Relation to Head of Household, Occupation, Sickness and Infirmity, Birthplace, Length of Residence in Colony, Religion, Education, Materials of Houses and Number of Rooms. In addition to these, it was agreed that States so desiring might include further inquiries relating to Land, Live Stock, Crops, and certain other matters.

Provision was made for uniformity in the classification and compilation of the data by formulating rules for dealing with cases in which differences of opinion as to methods of treatment might exist. Thus, although conducted by six different States, the Census of the Commonwealth, as taken in 1901, was carried out on a fairly uniform plan, and consequently furnished data in many ways suitable for purposes of aggregation or comparison. A detailed examination of the results, however, gives many indications of departure from a common line of action, which, in the absence of a central authority, can hardly be avoided in an undertaking of this nature.

4. The Census of 1911.—Under Section 51, sub-section (xi.) of the Constitution Act, power is given to the Parliament of the Commonwealth to make laws with respect to "Census and Statistics." This power was brought into requisition in 1905, when the Census and Statistics Act of 1905 became law, being assented to on 8th December, 1905. Under this Act provision is made for the appointment of a Commonwealth Statistician, and amongst other duties that officer is charged with the taking of a Census in the year 1911 and in every tenth year thereafter.

The particulars which the Act requires to be included in the Census schedule are almost identical with those which were contained in the 1901 schedule, the principal alterations being that "Length of Residence in Australia" is specified instead of "Length of Residence in the Colony of Enumeration," that "Duration of Marriage" has to be asked in all cases, and that nationality has to be ascertained in addition to birthplace. The Census was taken as at 3rd April, 1911.

In each State a Census supervisor was appointed to control the collection within that State under the direction of the Commonwealth Statistician. Each State was then divided into Census districts, each of which was placed in the charge of an enumerator, and each Census district was further subdivided into collectors' districts, one collector for each district.

It should be noted, in connexion with the Census of 1911, that a slight change in defining the date of reference has been made in order to accord with the English practice. In previous Australian Censuses the date of the Census has been taken to be that of the day preceding the midnight which is adopted as the determining point. Thus, at the Census of 1901, where the figures given relate approximately to midnight between the 31st March and the 1st April, the Australian Census was stated to be that of the 31st March, while in a precisely similar case in England it was stated to be that of 1st April. At the Census of 1911, taken as at midnight between the 2nd and 3rd April, the date of the Census has, in accordance with the English practice, been stated to be the 3rd April, and that day was gazetted as the day of the Census.

5. The Census of 1921.—The third Australian Census since the commencement of the century was taken under the Census and Statistics Act 1905–20, as at midnight between the 3rd and 4th April, 1921, the latter date being gazetted as Census Day. On this occasion the Federal Electoral organization was utilized for collecting purposes, the Commonwealth Chief Electoral Officer (Mr. Oldham) kindly consenting to allow his officers to undertake the local direction of the collecting staffs.

In each State the Commonwealth Electoral Officer was appointed Deputy Supervisor of Census for that State, and each Divisional Returning Officer was appointed Census Enumerator for the Division under his control. To assist the Enumerators in the selection and direction of the actual collectors, Sub-enumerators were appointed, the Census Subdivision being in most cases a Federal Electoral Subdivision or a group of two or more such electoral subdivisions.

In addition to the six States the five territories of the Commonwealth were also enumerated, viz., (i) Northern Territory, (ii) Federal Capital Territory, (iii) Norfolk Island, (iv) Papua, (v) New Guinea.

In each of these cases a Deputy Supervisor of Census was appointed who, however, dealt directly with his collectors without the intermediary of Enumerators and Sub-enumerators. For the whole of the Commonwealth and its dependencies the collecting organization comprised the following, viz. :—11 Deputy Supervisors, 75 Enumerators, 979 Sub-enumerators, 9,500 Collectors.

The compilation of the results is being carried out as far as possible by machinery, this being the first occasion on which the tabulation of an Australian Census has been so conducted. The system in use is that which is generally known as the "Hollerith," and the requisite machines and cards are supplied by the British Tabulating Machine Company, London.

The particulars at present available are the populations of the several States and Territories, and of the several Local Government Areas comprised therein, details of which have been included as far as practicable in the present Section. The population estimates for the intercensal period 1911–21 have also been adjusted on the basis of the results disclosed by the Census of 1921. Analyses of the Census data according to age, birthplace, religion, occupation, &c., will, however, not be available for some considerable time, and the figures relative thereto for the Census of 1911 have consequently been allowed to stand.

The total populations enumerated at the several Australian Censuses are shewn in the following table:—

AUSTRALIAN CENSUSES.

Census Year.	Population Enumerated (exclusive of Aboriginals).						
	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth (Total).
1828	(Nov.) 36,598	..	..	..	..	..	..
1833	(2nd Sept.) 60,794	..	..	..	..	..	..
1836	(2nd Sept.) 77,096	..	..	..	..	..	..
1841	(2nd March) 130,856	..	..	..	..	(27th Sept.) 50,216	..
1844	..	..	..	(26th Feb.) 17,366	..	..	..
1846	(2nd March) 189,609	..	..	(26th Feb.) 22,390	..	..	..
1847	..	..	..	..	..	(31st Dec.) 70,164	..
1848	..	..	..	..	(10th Oct.) 4,622	..	..
1851	(1st Mar.) (a) 268,344	..	..	(1st Jan.) 63,700	..	(1st Mar.) 70,130	..
1854	..	(26th Apr.)(b) 234,298	..	..	(30th Sept.) 11,743	..	..
1855	..	..	..	(31st Mar.) 85,821	..	..	..
1856	(1st March) 269,722	..	..	..	..	..	..
1857	..	(29th Mar.) 408,998	..	..	..	(31st Mar.) 81,492	..
1859	..	..	..	..	(31st Dec.) 14,837	..	..
1861	(7th April) 350,860	(7th April) 538,628	(7th April)(b) 30,059	(7th April) 126,830	..	(7th April) 89,977	..
1864	..	..	(1st Jan.) 61,467	..	..	..	..
1866	..	..	..	(26th Mar.) 163,452	..	..	..
1868	..	..	(2nd Mar.) 99,901	..	..	..	..
1870	..	..	..	..	(31st Mar.) 24,785	(7th Feb.) 99,328	..
1871	(2nd April) 502,998	(2nd April) 730,198	(1st Sept.) 120,104	(2nd April) 185,626	..	..	..
1876	..	..	(1st May) 173,283	(26th Mar.) 213,271	..	..	..
1881 (c)	749,825	861,566	213,525	279,865	29,708	115,705	2,250,194
1886	..	..	(1st May) 322,853	..	..	..	..
1891 (d)	1,123,954	1,139,840	393,718	320,431	49,782	146,667	3,174,392
1901 (e)	1,354,846	1,201,070	498,129	363,157	184,124	172,475	3,773,801
1911 (f)	1,646,734 } (g) 1,714 }	1,315,551	605,813	408,558 } (h) 3,310 }	282,114	191,211	4,455,005
1921 (i)	2,099,763 } (j) 2,572 }	1,531,529	757,634	495,336 } (k) 3,870 }	332,213	213,877	5,436,794

(a) Including Port Phillip District, which afterwards became the Colony of Victoria. (b) Previously included with New South Wales. (c) 3rd April. (d) 5th April. (e) 31st March. (f) 3rd April. (g) Federal Capital Territory, previously included with New South Wales. (h) Northern Territory, previously included with South Australia. (i) 4th April (subject to revision). (j) Federal Capital Territory. (k) Northern Territory.

6. **Estimates of Population.**—In the absence of an annual enumeration of the population, it becomes necessary to adopt some method of estimating it for intercensal periods, basing such estimates on the results of the most recent Censuses. The manner in which this is effected varies, however, in different parts of the world. In England, for example, the assumption usually made is that the rate of increase of the preceding intercensal period will continue unchanged during the current period. Again, in the United States, it has been assumed, in certain cases, that the numerical increase per annum ascertained for the preceding intercensal period will hold good for the current period. From the earliest times in Australia, "statistics of fluctuation" have been obtained from the records of births, deaths, arrivals and departures. With reasonable thoroughness in the collection of such statistics, the deduced estimates possess much greater weight than those based on the mere assumption of a continuation of the increase experienced in the preceding period. In most cases, however, estimates of population, based on statistics of fluctuation, are found to be in excess at the Census, thus furnishing evidence of a uniform tendency to over-estimation, and indicating the necessity for a correction. In the population figures given in the earlier portion of the present section, the estimates of the population of the several States have been carefully revised, the results of the various Censuses being taken in conjunction with the records of births, deaths, arrivals and departures. It is believed that by this means the population of the Commonwealth from the date of settlement onwards has been obtained with a high degree of accuracy, and that the figures supplied represent a reasonably close approximation to the actual numbers. A detailed account of the adjustment for the decennium 1901–10 will be found on pp. 112–118 of Year Book No. 6. Particulars for the several States and Territories from the date of settlement onwards are given in the following tables, and are shewn by graphs on pages 1131 to 1133:—

COMMONWEALTH POPULATION FROM EARLIEST DATE.

Year.	Estimated Population at end of Year.								
	States.						Territories.		Commonwealth.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern	Federal.	
					MALES.				
(a)1800	3,780	..	..	..	..	..	..	..	3,780
1805	5,395	..	..	..	..	..	..	..	5,395
1810	7,585	..	..	..	..	..	..	..	7,585
1815	9,848	..	..	..	..	..	..	..	9,848
1820	23,784	..	..	..	..	..	..	..	23,784
1825	29,309	..	..	..	..	(b) 10,979	..	..	40,288
1830	33,900	..	..	..	877	18,108	..	..	52,885
1835	51,949	..	..	..	1,231	28,749	..	..	81,929
1840	85,560	..	..	8,272	1,434	32,040	..	..	127,306
1845	113,739	..	..	12,810	2,689	43,921	..	..	173,159
1850	154,976	..	..	35,902	3,576	44,229	..	..	238,683
1855	147,822	(b) 226,462	..	48,843	8,311	38,680	..	..	470,118
1860	197,851	330,302	(b) 16,817	64,340	9,597	49,653	..	..	668,560
1865	222,890	348,717	53,292	84,255	13,575	50,549	..	..	773,278
1870	272,121	397,230	69,221	94,894	15,511	53,517	..	..	902,494
1875	322,534	424,269	102,161	108,706	16,141	54,678	..	..	1,028,489
1880	404,952	450,558	124,013	147,438	16,985	60,568	..	..	1,204,514
1885	518,606	504,097	186,866	162,425	20,688	67,712	..	..	1,460,394
1890	602,704	595,519	223,252	166,049	28,854	76,453	..	..	1,692,831
1895	668,209	607,983	248,865	180,314	69,733	80,485	..	..	1,855,589
1900	716,047	601,773	274,684	180,349	110,088	89,763	(c) 4,288	..	1,976,992
1905	782,897	698,184	291,807	181,467	146,498	95,947	3,368	..	2,100,118
1910	858,181	646,482	325,513	206,557	157,971	98,866	2,738	..	2,296,308
1915	972,550	694,166	366,358	220,981	170,764	98,665	3,586	957	2,528,016
1916	945,846	666,186	352,689	212,602	159,086	96,010	3,712	1,194	2,437,275
1917	960,103	671,008	354,929	213,691	157,355	96,945	3,748	1,080	2,458,859
1918	984,453	684,167	363,650	219,723	159,662	100,109	3,499	1,179	2,516,442
1919	1,041,992	739,872	390,682	240,226	174,750	106,374	3,376	1,008	2,698,281
1920	1,067,513	753,710	397,180	245,325	176,638	107,283	2,911	1,062	2,751,622

(a) Details as to sex not available for earlier quinquennial dates. (b) Previously included with New South Wales. (c) Previously included with South Australia.

COMMONWEALTH POPULATION FROM EARLIEST DATE—*continued.*

Year.	Estimated Population at end of Year.								
	States.						Territories.		Commonwealth
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern	Federal.	
				FEMALES.					
(a)1800	1,437	..	..	..	..	..	..	..	1,437
1805	2,312	..	..	..	..	..	..	..	2,312
1810	3,981	..	..	..	..	..	..	..	3,981
1815	5,215	..	..	..	..	..	..	..	5,215
1820	9,759	..	..	..	..	..	..	..	9,759
1825	9,004	..	..	..	..	(b) 3,213	..	..	12,217
1830	10,688	..	..	..	295	6,171	..	..	17,154
1835	19,355	..	..	..	647	11,423	..	..	31,425
1840	41,908	..	..	6,358	877	13,959	..	..	63,102
1845	74,179	..	..	9,650	1,790	20,370	..	..	105,969
1850	111,924	..	..	27,798	2,310	24,641	..	..	166,673
1855	118,179	(b) 120,843	..	48,544	4,204	31,292	..	..	323,142
1860	150,695	207,932	(b) 11,239	61,242	5,749	40,168	..	..	477,025
1865	185,016	269,074	33,629	77,222	7,806	43,418	..	..	616,765
1870	225,871	326,695	46,051	89,652	9,624	47,369	..	..	745,262
1875	270,833	370,665	66,944	101,370	10,861	49,061	..	..	869,734
1880	336,190	408,047	87,027	128,955	12,576	54,222	..	..	1,027,017
1885	425,261	455,741	129,815	146,888	15,271	61,148	..	..	1,234,124
1890	510,571	538,209	168,864	152,808	19,648	68,334	..	..	1,458,524
1895	587,294	577,743	194,199	171,654	30,782	74,410	..	..	1,636,082
1900	644,258	594,440	210,163	176,901	69,879	83,137	(c) 569	..	1,788,347
1905	704,987	612,287	239,675	181,154	103,640	90,438	678	..	1,932,859
1910	785,674	654,926	273,503	200,311	118,861	94,937	563	..	2,128,775
1915	920,641	730,433	319,511	225,096	145,662	98,925	898	(b) 872	2,442,038
1916	938,876	738,645	325,347	229,345	147,505	99,656	954	1,029	2,481,357
1917	959,518	746,231	332,699	233,139	149,137	101,131	1,055	1,024	2,523,934
1918	976,990	753,266	341,887	237,965	150,120	102,815	1,141	1,053	2,565,237
1919	996,159	763,369	346,906	241,389	152,655	103,581	1,171	911	2,606,141
1920	1,023,602	774,441	355,065	245,852	154,181	105,564	1,081	910	2,660,696
				PERSONS.					
1788	859	..	..	..	..	..	..	..	859
1790	2,056	..	..	..	..	..	..	..	2,056
1795	3,466	..	..	..	..	..	..	..	3,466
1800	5,217	..	..	..	..	..	..	..	5,217
1805	7,707	..	..	..	..	..	..	..	7,707
1810	11,566	..	..	..	..	..	..	..	11,566
1815	15,063	..	..	..	..	..	..	..	15,063
1820	33,543	..	..	..	..	..	..	..	33,543
1825	38,313	..	..	..	..	(b) 14,192	..	..	52,505
1830	44,588	..	..	..	1,172	24,279	..	..	70,039
1835	71,304	..	..	..	1,878	40,172	..	..	113,354
1840	127,468	..	..	14,630	2,311	45,999	..	..	190,408
1845	187,918	..	..	22,460	4,479	64,291	..	..	279,148
1850	266,900	..	..	63,700	5,886	68,870	..	..	405,356
1855	266,001	(b) 347,305	..	97,387	12,605	69,962	..	..	793,260
1860	348,546	538,234	(b) 28,056	125,582	15,346	89,821	..	..	1,145,585
1865	408,506	617,791	86,921	161,477	21,361	93,967	..	..	1,390,043
1870	497,992	723,925	115,272	184,546	25,135	100,886	..	..	1,647,756
1875	593,367	794,934	169,105	210,076	27,002	103,739	..	..	1,898,223
1880	741,142	858,605	211,040	276,393	29,561	114,790	..	..	2,231,531
1885	943,867	959,838	316,681	309,313	35,959	128,860	..	..	2,694,518
1890	1,113,275	1,133,728	392,116	318,947	48,502	144,787	..	..	3,151,355
1895	1,255,503	1,185,676	443,064	351,968	100,515	154,895	..	..	3,491,621
1900	1,360,305	1,196,213	493,847	357,250	179,967	172,900	(c) 4,857	..	3,765,339
1905	1,437,884	1,210,421	531,482	362,621	250,138	186,385	4,046	..	4,032,977
1910	1,643,855	1,301,408	599,016	406,868	276,832	193,803	3,301	..	4,425,083
1915	1,893,191	1,424,593	685,864	446,077	316,426	197,590	4,484	(b) 1,829	4,970,054
1916	1,884,722	1,404,83[illegible]	677,986	441,947	306,591	195,666	4,666	2,223	4,918,632
1917	1,919,621	1,417,239	687,628	446,830	306,492	198,076	4,803	2,104	4,982,793
1918	1,961,443	1,437,433	705,587	457,688	309,782	202,924	4,640	2,232	5,081,679
1919	2,038,152	1,503,241	737,588	481,615	327,405	209,955	4,547	1,919	5,304,4[illegible]2
1920	2,091,115	1,528,151	752,245	491,177	330,819	212,847	3,992	1,972	5,412,318

(a) Details as to sex not available for earlier quinquennial dates. (b) Previously included with New South Wales. (c) Previously included with South Australia.

The tables on this and the preceding page, shewing the quinquennial and other figures for the male, female, and total population of each State and the Commonwealth, give sufficient indication, for general purposes, of its progress. A reference to the diagrams

given hereinbefore (pp. 1131 to 1133), on which the graphs shew the particulars for each year, is also desirable. The characteristics of the fluctuations of each element, or of the totals, will be more readily perceived by reference to the graphs than they possibly can by reference to these numerical tables. The earliest date for which particulars as to sex were available is 1796. The figures from 1788 to 1825 inclusive, as already mentioned, are based upon the results of the musters taken in those years; those for subsequent years are founded upon estimates made on the basis of the Census results and the annual returns of births and deaths and immigration and emigration.

The following table furnishes particulars relative to the increase of population of the Commonwealth during each decade, and the percentage of such increase on the population at the commencement of the decade :—

INCREASE OF COMMONWEALTH POPULATION.

Decade ended 31st December.	Increase during Decade—					
	Numerical.			Percentage.		
	Males.	Females.	Persons.	Males.	Females.	Persons.
				%	%	%
1790	(a)	(a)	2,056	..	..	..
1800	(a)	(a)	3,161	(a)	(a)	153.75
1810	3,805	2,544	6,349	100.66	177.04	121.70
1820	16,199	5,778	21,977	213.57	145.14	190.01
1830	29,101	7,395	36,496	122.36	75.78	108.80
1840	74,421	45,948	120,369	140.72	267.86	171.86
1850	111,377	103,571	214,948	87.49	164.13	112.89
1860	429,877	310,352	740,229	180.10	186.20	182.61
1870	233,934	268,237	502,171	34.99	56.23	43.84
1880	302,020	281,755	583,775	33.47	37.81	35.43
1890	488,317	431,507	919,824	40.54	42.02	41.22
1900	284,161	329,823	613,984	16.79	22.61	19.48
1910	319,316	340,428	659,744	16.15	19.04	17.52
1920	455,314	531,921	987,235	19.83	24.99	22.31

(a) Not available.

§ 9. Census of 4th April, 1921.

1. **Numbers Enumerated.**—As already mentioned, the Census for the whole of the Australian Commonwealth was taken as for the night between the 3rd and the 4th of April, 1921, and was the second Census under the provisions of the Commonwealth Census and Statistics Act 1905-20, which provides for the enumeration of the whole of Australia being dealt with from one centre, instead of each State being responsible for its own count as on previous occasions. The numbers recorded in the several States and Territories of the Commonwealth were as follows :—

POPULATION OF THE COMMONWEALTH, 4th APRIL, 1921.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

States and Territories.	Males.	Females.	Persons.
States—			
New South Wales ..	1,071,058	1,028,705	2,099,763
Victoria	754,629	776,900	1,531,529
Queensland	399,610	358,024	757,634
South Australia	248,293	247,043	495,336
Western Australia ..	177,013	155,200	332,213
Tasmania	107,767	106,110	213,877
Territories—			
Northern	2,821	1,049	3,870
Federal	1,567	1,005	2,572
Total Commonwealth ..	2,762,758	2,674,036	5,436,794

2. Growth during last Four Decennia.—The total increase of population of the Commonwealth between the Census of 3rd April, 1911, and that of 4th April, 1921, was 981,789, of which 449,723 were males and 532,066 were females, as compared with a total increase of 681,204, comprising 335,107 males and 346,097 females, for the preceding ten years. The population of each sex enumerated at the Censuses of 3rd April, 1881, 5th April, 1891, 31st March, 1901, 3rd April, 1911, and 4th April, 1921, was as follows :—

POPULATION OF COMMONWEALTH AT LAST FIVE CENSUSES.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

Date of Census.	Males.	Females.	Persons.	(a) Masculinity.
3rd April, 1881	1,214,913	1,035,281	2,250,194	7.98
5th April, 1891	1,704,039	1,470,353	3,174,392	7.36
31st March, 1901	1,977,928	1,795,873	3,773,801	4.83
3rd April, 1911	2,313,035	2,141,970	4,455,005	3.84
4th April, 1921 (b) ..	2,762,758	2,674,036	5,436,794	1.63

(a) Excess of males over females per 100 of population. (b) Preliminary totals only ; subject to revision.

The increases in the populations of the several States and Territories during the past four intercensal periods have been as follow :—

INTERCENSAL INCREASES IN THE TOTAL POPULATION.

State and Territory.	1881–1891.		1891–1901.		1901–1911.		1911–1921.	
	Numerical.	Per cent.	Numerical.	Per cent.	Numerical.	Per cent.	Numerical.	Per cent.
N.S. Wales ..	(a)374,129	49.90	(a)230,892	20.54	(a)293,602	21.67	453,029	27.51
Victoria ..	278,274	32.30	61,230	5.37	114,481	9.53	215,978	16.42
Queensland ..	180,193	84.39	104,411	26.52	107,684	21.02	151,821	25.06
South Australia	39,110	14.15	42,813	13.57	50,212	14.01	86,778	21.24
West Australia	20,074	67.57	134,342	269.86	97,990	53.22	50,096	17.76
Tasmania ..	30,962	26.76	25,808	17.60	18,738	10.86	22,666	11.85
N. Territory ..	1,447	41.93	(b)-87	(b)-1.78	(b)-1,501	(b)-31.20	560	16.92
F. Territory ..	..	..	..	..	..	..	858	50.06
Commonwealth	924,198	41.07	599,409	18.88	681,204	18.05	981,789	22.04

(a) Including Federal Territory. (b) Decrease.

For the Commonwealth as a whole, the increase in population during the period 1911–1921 was greater by 300,585 than that for the period 1901–1911, the rate of increase being 22.04 per cent. for 1911–1921, as against 18.05 for 1901–1911. The former corresponds to an increase of 1.67 per cent. per annum, the latter to an increase of 2.03 per cent. per annum.

As regards the separate States, the numerical increases in the case of New South Wales, Victoria, Queensland, South Australia, and Tasmania were greater for 1911–1921 than for 1901–1911. On the other hand, Western Australia experienced greater numerical increases in the earlier than in the later decennia. The Northern Territory, which exhibited an actual loss of population in 1891–1901 and 1901–1911, experienced its first increase since the 1881–1891 decennium during the period 1911–1921. In the matter of rates of increase per cent. New South Wales, Victoria, Queensland, South Australia, and Tasmania were higher in 1911–1921 than in 1901–1911, while Western Australia was considerably lower.

§ 10. Principal Results of Census of 1911.

1. *Census Results.*—In the first issue of the Official Year Book tables are given shewing in some detail particulars concerning the Census of 1901 for the several States under the headings of Ages, Birthplaces, Occupations, Religions, and Conjugal Condition. (See Year Book No. 1, pp. 164 to 179.) In the Official Year Book No. 6, pp. 143 to 171, similar and a few additional particulars appeared as to the Census of 3rd April, 1911. In the following tables this information is given in a condensed form. Corresponding particulars for the Census of 1921 are not available at date of going to press.

2. *Ages.*—The numbers of persons of each sex at each age enumerated in the several States of the Commonwealth at the Census of 3rd April, 1911, are as follows :—

AUSTRALIAN POPULATION AT 3rd APRIL, 1911, CLASSIFIED ACCORDING TO AGE.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

Age Group.	States.						Territories.		Total C'wealth.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nrth'n.	Federal.	
MALES.									
0–4 ..	102,003	73,061	37,724	24,109	17,709	12,636	84	85	267,411
5–9 ..	85,137	65,615	32,068	20,470	14,807	11,307	93	89	229,586
10–14 ..	79,136	63,580	31,454	19,589	11,789	10,086	65	99	215,804
15–19 ..	82,981	67,804	32,648	21,524	11,787	9,913	79	95	226,831
20–24 ..	87,314	61,895	33,600	21,564	14,713	8,843	146	104	228,179
25–29 ..	76,430	51,955	29,053	19,020	15,487	7,731	156	90	199,922
30–34 ..	64,228	44,928	24,445	15,057	15,641	6,570	175	75	171,119
35–39 ..	55,121	41,308	21,411	12,287	15,551	6,011	213	70	151,872
40–44 ..	50,940	42,512	20,086	11,468	13,923	5,555	340	43	144,867
45–49 ..	46,638	41,015	18,769	10,300	10,758	5,157	384	58	133,079
50–54 ..	39,345	31,866	15,202	9,543	7,345	4,368	415	48	108,132
55–59 ..	27,514	19,486	10,271	7,253	4,109	3,019	238	48	72,058
60–64 ..	20,023	13,634	7,474	4,971	2,788	2,115	184	27	51,416
65–69 ..	15,370	11,432	5,889	4,006	1,869	1,581	54	26	40,227
70–74 ..	10,611	9,415	4,260	2,555	1,124	1,041	39	18	29,063
75–79 ..	6,658	7,275	2,103	1,529	576	678	7	5	18,831
80–84 ..	2,773	3,303	708	818	254	341	2	3	8,202
85–89 ..	771	1,133	230	289	64	144	..	1	2,638
90–94 ..	185	267	52	68	25	43	..	..	640
95–99 ..	35	34	9	19	3	16	..	..	116
100 and upwards	19	8	2	1	1	4	..	..	35
Unspecified ..	4,490	3,259	1,982	918	1,152	532	60	8	12,401
Total ..	857,698	655,591	329,506	207,358	161,565	97,591	2,734	992	2,313,035
FEMALES.									
0–4 ..	98,863	70,417	35,080	23,421	17,215	12,144	87	95	258,222
5–9 ..	83,120	63,904	31,418	19,850	14,387	10,802	88	91	223,660
10–14 ..	77,098	62,523	30,995	19,412	11,627	9,653	60	89	212,357
15–19 ..	81,015	67,719	30,888	21,350	10,806	9,765	70	92	221,705
20–24 ..	82,850	65,217	29,407	20,636	10,584	9,293	45	59	218,091
25–29 ..	72,390	55,651	23,508	18,517	10,429	7,872	46	41	188,454
30–34 ..	59,896	48,694	19,289	14,707	10,582	6,579	50	44	159,841
35–39 ..	50,708	44,549	16,738	12,213	9,917	5,361	35	39	139,560
40–44 ..	43,455	42,480	14,607	11,204	7,924	4,899	38	44	124,651
45–49 ..	37,583	38,477	12,246	10,042	5,648	4,468	24	29	108,537
50–54 ..	29,964	29,420	9,519	8,348	3,745	3,755	11	25	84,787
55–59 ..	20,905	18,457	6,356	6,190	2,427	2,558	9	21	56,923
60–64 ..	16,352	14,316	4,918	4,626	1,818	1,928	3	13	43,974
65–69 ..	13,014	12,603	4,160	3,734	1,320	1,614	4	15	36,464
70–74 ..	8,585	9,972	2,792	2,717	813	1,119	1	8	26,007
75–79 ..	6,242	6,934	1,411	1,815	376	719	1	3	16,501
80–84 ..	2,223	3,387	596	971	139	369	..	4	7,689
85–89 ..	783	1,129	232	373	59	128	..	2	2,706
90–94 ..	241	265	50	99	10	37	..	..	702
95–99 ..	34	56	10	19	1	7	..	..	127
100 and upwards	12	10	3	2	2	..	..	..	29
Unspecified ..	3,802	3,780	1,184	954	720	530	4	8	10,983
Total ..	789,036	639,960	276,307	201,200	120,549	93,620	576	722	2,141,970

AUSTRALIAN POPULATION AT 3RD APRIL, 1911, CLASSIFIED ACCORDING TO AGE.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS)—*continued*.

Age Group.	States.						Territories.		Total C'wealth.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nrth'n.	Federal.	
				PERSONS.					
0–4 ..	200,866	148,478	73,704	47,530	34,924	24,780	171	180	525,633
5–9 ..	168,257	129,519	63,486	40,320	29,194	22,100	181	180	453,246
10–14 ..	157,134	126,109	62,449	39,001	23,416	19,739	125	188	428,161
15–19 ..	*163,998*	*135,523*	*63,536*	*42,874*	*22,593*	*19,678*	*149*	*187*	448,536
20–24 ..	170,164	127,112	63,007	42,200	25,297	18,136	191	163	446,270
25–29 ..	148,820	107,606	52,561	37,537	25,016	15,603	202	[illegible]	388,376
30–34 ..	124,124	93,622	43,734	29,764	26,228	13,149	225	119	330,960
35–39 ..	105,829	85,857	38,149	24,500	25,468	11,272	248	109	291,432
40–44 ..	94,395	84,992	34,693	22,672	21,847	10,454	378	87	269,518
45–49 ..	84,221	79,492	31,015	20,342	16,406	9,645	408	87	241,616
50–54 ..	69,309	61,286	24,721	17,891	11,000	8,123	426	73	192,919
55–59 ..	48,449	37,943	16,627	13,443	6,626	5,577	247	69	128,981
60–64 ..	36,375	28,150	12,392	9,597	4,606	4,043	187	40	95,390
65–69 ..	28,384	24,035	10,049	7,740	3,189	3,195	58	41	76,691
70–74 ..	19,196	19,387	7,052	5,272	1,937	2,160	40	26	55,070
75–79 ..	11,900	14,209	3,514	3,341	952	1,397	8	8	35,332
80–84 ..	4,942	7,290	1,364	1,789	393	710	2	7	16,497
85–89 ..	*1,554*	*2,202*	*468*	*662*	*123*	*272*	..	*3*	5,344
90–94 ..	426	532	102	167	35	80	..	..	1,342
95–99 ..	69	90	19	38	4	23	..	..	243
100 and upwards	31	18	5	3	3	4	..	..	64
Unspecified ..	8,293	7,039	3,166	1,872	1,872	1,062	64	16	23,384
Total ..	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

3. **Birthplaces.**—In the next table particulars are given of the populations of the several States of the Commonwealth on 3rd April, 1911, classified according to sex and birthplace, the birthplaces being grouped under the five continental divisions of the globe, with two additional headings for those born in Polynesia, and those born at sea. Of the total population of 4,455,005, those of unspecified birthplace numbered 30,470, or slightly less than 7 per thousand :—

AUSTRALIAN POPULATION AT 3rd APRIL, 1911, CLASSIFIED ACCORDING TO BIRTHPLACE.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

Birthplace.	States.						Territories.		Total C'wealth.
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern.	Federal.	
				MALES.					
Australia ..	691,736	541,659	232,757	173,811	111,269	86,948	1,029	844	1,840,053
New Zealand ..	*7,296*	*4,968*	*1,632*	*554*	*1,819*	*574*	*17*	*2*	*18,862*
United Kingdom	121,046	82,927	68,406	24,283	32,191	7,577	224	113	336,767
Other European Countries ..	15,507	11,501	12,997	5,636	8,080	776	45	4	54,546
Asia ..	10,386	5,939	8,878	1,033	5,605	579	1,359	5	33,284
Africa ..	1,087	747	332	193	244	70	9	..	2,682
America ..	3,111	1,874	1,218	523	813	183	12	4	7,738
Polynesia ..	676	721	1,567	23	57	21	11	..	2,476
At Sea ..	817	630	342	211	146	62	1	..	2,209
Unspecified ..	6,036	5,225	1,877	1,091	1,341	801	27	20	16,418
Total ..	857,698	655,691	329,506	207,358	161,565	97,591	2,734	992	2,313,035

AUSTRALIAN POPULATION AT 3RD APRIL, 1911, CLASSIFIED ACCORDING TO BIRTHPLACE.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS)—*continued.*

Birthplace.	States.						Territories.		Total C'wealth.
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern.	Federal.	
FEMALES.									
Australia ..	685,483	567,286	213,938	176,450	97,781	85,549	476	654	1,827,617
New Zealand ..	6,667	5,099	944	432	1,235	626	1	2	15,006
United Kingdom	83,348	74,500	51,609	20,148	18,361	5,895	38	47	253,955
Other European Countries ..	4,264	3,845	7,230	2,353	1,348	358	4	1	19,403
Asia	1,077	737	489	211	391	199	54	..	3,158
Africa ..	912	751	195	164	170	75	..	..	2,276
America ..	1,313	1,109	470	241	310	96	..	1	3,540
Polynesia ..	528	158	161	32	31	23	1	..	934
At Sea ..	662	673	287	211	135	60	1	..	2,029
Unspecified ..	4,782	5,793	984	958	778	739	1	17	14,052
Total ..	789,036	659,960	276,307	201,200	120,549	93,820	576	722	2,141,970
PERSONS.									
Australia ..	1,377,219	1,108,945	446,695	350,261	209,050	172,407	1,505	1,498	3,667,670
New Zealand ..	13,063	10,067	2,576	986	3,054	1,200	18	4	31,868
United Kingdom	204,394	157,436	120,015	44,431	50,552	13,472	262	160	590,722
Other European Countries ..	19,771	15,346	20,227	7,989	9,428	1,134	49	5	73,949
Asia	11,463	6,676	8,867	1,244	5,996	778	1,413	5	36,442
Africa ..	1,990	1,498	527	357	423	145	9	..	4,958
America ..	4,424	2,983	1,688	764	1,123	279	12	5	11,278
Polynesia ..	1,204	279	1,728	55	88	44	12	..	3,410
At Sea ..	1,479	1,303	629	422	281	122	2	..	4,238
Unspecified ..	10,818	11,018	2,861	2,049	2,119	1,540	28	37	30,470
Total ..	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

4. Occupations.—In the compilation of the results of the Census of 3rd April, 1911, the populations of the several States and Territories were tabulated according to occupation in the following classes :—

(i) *Professional.* Embracing all persons not otherwise classed, mainly engaged in the government and defence of the country, and in satisfying the moral, intellectual, and social wants of its inhabitants.

(ii) *Domestic.* Embracing all persons engaged in the supply of board and lodging, and in rendering personal services for which remuneration is usually paid.

(iii) *Commercial.* Embracing all persons directly connected with the hire, sale, transfer, distribution, storage, and security of property and materials.

(iv) *Transport and Communication.* Embracing all persons engaged in the transport of persons or goods, or in effecting communication.

(v) *Industrial.* Embracing all persons not otherwise classed who are principally engaged in various works of utility, or in specialities connected with the manufacture, construction, modification, or alteration of materials so as to render them more available for the various uses of man, but excluding, as far as possible, all who are mainly or solely engaged in the service of commercial interchange.

(vi) *Agricultural, Pastoral, Mineral, and other Primary Producers.* Embracing all persons mainly engaged in the cultivation or acquisition of food products, and in obtaining other raw materials from natural sources.

(vii) *Independent.* Embracing all persons of independent means having no specific occupation.

(viii) *Dependents.* Embracing all persons dependent upon relatives or natural guardians, including wives, children, and others, not otherwise engaged in pursuits for which remuneration is paid, and all persons depending upon private charity, or whose support is a burthen on the public revenue.

Particulars concerning the number contained in each of these classes are given in the table hereunder :—

AUSTRALIAN POPULATION AT 3rd APRIL, 1911, CLASSIFIED ACCORDING TO OCCUPATION.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

Occupation.	States.						Territories.		Total C'wealth.
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern.	Federal.	
MALES.									
Class									
I. Professional ..	36,703	26,607	11,403	6,644	6,746	3,850	73	52	91,638
II. Domestic ..	18,898	13,619	6,354	3,416	4,319	1,189	127	11	48,235
III. Commercial ..	88,208	74,448	28,905	22,304	15,378	7,041	196	19	236,499
IV. Transport and Communication	60,367	37,620	22,521	15,523	11,900	4,407	194	13	152,554
V. Industrial ..	171,921	141,317	56,949	44,385	24,043	14,710	208	210	453,743
VI. Primary Producers ..	199,143	139,221	98,721	47,642	53,059	30,413	1,673	396	570,268
VII. Independent ..	5,507	4,546	2,027	931	478	436	9	5	13,939
VIII. *Dependents* ..	*265,731*	*202,357*	*98,359*	*62,275*	*43,913*	*33,630*	*236*	*272*	*706,773*
Unspecified ..	11,160	15,847	4,267	4,236	1,729	2,115	18	14	39,366
Total ..	857,698	655,591	329,506	207,358	161,565	97,591	2,734	992	2,313,035
FEMALES.									
Class									
I. Professional ..	19,377	17,212	6,250	4,529	3,453	2,131	13	8	52,973
II. Domestic ..	54,483	48,556	20,216	14,060	9,303	6,375	74	64	153,131
III. *Commercial* ..	*18,112*	*17,163*	*5,659*	*4,674*	*2,906*	*1,671*	..	*3*	*50,188*
IV. Transport and Communication	1,597	1,609	621	347	326	331	..	6	4,837
V. Industrial ..	36,093	46,456	11,313	8,181	3,985	2,558	4	4	108,594
VI. Primary Producers ..	4,950	5,163	3,183	1,406	528	614	12	24	15,880
VII. Independent ..	3,401	3,507	731	761	272	443	..	1	9,116
VIII. Dependents ..	650,480	518,780	227,711	166,432	99,554	79,171	473	612	1,743,213
Unspecified ..	543	1,514	623	810	222	326	..	..	4,038
Total ..	789,036	659,960	276,307	201,200	120,549	93,620	576	722	2,141,970
PERSONS.									
Class									
I. Professional ..	56,140	43,819	17,653	11,173	10,199	5,481	86	60	144,611
II. Domestic ..	73,381	62,175	26,570	17,476	13,622	7,564	201	75	201,366
III. Commercial ..	106,320	91,611	34,564	26,978	18,284	8,712	196	22	286,687
IV. Transport and Communication	61,964	39,238	23,142	15,870	12,226	4,738	194	19	157,391
V. Industrial ..	208,014	187,773	68,262	52,566	28,028	17,268	212	214	562,337
VI. Primary Producers ..	204,093	144,384	101,904	49,048	53,587	31,027	1,685	420	586,148
VII. Independent ..	8,908	8,053	2,758	1,692	750	879	9	6	23,055
VIII. *Dependents* ..	*916,211*	*721,137*	*326,070*	*228,707*	*143,467*	*112,801*	*709*	*884*	*2,449,986*
Unspecified ..	11,703	17,361	4,890	5,046	1,951	2,441	18	14	43,424
Total ..	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

5. Religions.—In the Act under which the Census of 1911 was taken in the several States, persons enumerated were required under penalty to furnish replies to all the inquiries contained in the schedule, with the exception of that relating to religion. In this case, any person objecting to give such particulars was allowed to insert the words "Object to state" in the space provided for religion. Of the total population of 4,455,005 there were 83,003, or 1.86 per cent., who availed themselves of this option. There were also 36,114, or 0.81 per cent., concerning whom no particulars as to religion were obtained.

Of the remainder, 4,274,414, or 95.95 per cent., were members of the various Christian denominations, 36,785 were members of non-Christian religions, 14,673 were of indefinite religious belief, and 10,016 stated that they were of no religion.

Amongst the Christian denominations, that most numerously represented was the Church of England, with 1,710,443 adherents, the next in order being the Roman Catholic (921,425), the Presbyterian (558,336), the Methodist (547,806), the Baptist (97,074), the Congregational (74,046), the Lutheran (72,395), the Church of Christ (38,748), and the Salvation Army (26,665).

The principal non-Christian religions represented in Australia were the Hebrew, Confucian, Mohammedan and Buddhist, the members of the Hebrew congregation totalling 17,287.

Those included under the head of "Indefinite" in the attached table consist mainly of persons who stated that they were "Freethinkers" or "Agnostics," or returned themselves as being of "No Denomination," while under the head of "No Religion" are given those who were so returned on the schedules as well as a small number who stated that they were "Atheists."

AUSTRALIAN POPULATION AT 3rd APRIL, 1911, CLASSIFIED ACCORDING TO RELIGION.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

Religion.	States.						Territories.		Total C'wealth.
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern.	Federal.	
MALES.									
Christian ..	820,484	623,789	305,929	192,825	147,116	92,902	1,050	961	2,185,056
Non-Christian ..	8,965	5,618	5,627	989	4,913	265	1,256	1	27,634
Indefinite ..	3,068	3,347	1,662	791	1,223	284	20	3	10,398
No Religion ..	2,471	2,110	1,595	787	1,074	169	31	2	8,239
Object to state	14,989	14,212	8,981	9,930	4,547	3,008	86	13	55,766
Unspecified ..	7,721	6,515	5,712	2,036	2,692	963	291	12	25,942
Total ..	857,698	655,591	329,506	207,356	161,565	97,591	2,734	992	2,313,035
FEMALES.									
Christian ..	773,845	643,264	269,895	193,718	116,644	90,938	349	705	2,089,358
Non-Christian ..	3,808	3,224	563	442	937	71	106	..	9,151
Indefinite ..	1,143	1,877	435	344	332	142	2	..	4,275
No Religion ..	481	531	311	221	186	41	6	..	1,777
Object to state	6,997	7,758	3,611	5,331	1,598	1,921	12	9	27,237
Unspecified ..	2,762	3,306	1,492	1,144	852	507	101	8	10,172
Total ..	789,036	659,960	276,307	201,200	120,549	93,620	576	722	2,141,970
PERSONS.									
Christian ..	1,594,329	1,267,053	575,824	386,543	263,760	183,840	1,399	1,666	4,274,414
Non-Christian ..	12,773	8,842	6,190	1,431	5,850	336	1,362	1	36,785
Indefinite ..	4,211	5,224	2,097	1,135	1,555	426	22	3	14,673
No Religion ..	2,952	2,641	1,906	1,008	1,260	210	37	2	10,016
Object to state	21,986	21,970	12,592	15,261	6,145	4,929	98	22	83,003
Unspecified ..	10,483	9,821	7,204	3,180	3,544	1,470	392	20	36,114
Total ..	1,646,734	1,315,551	605,813	408,556	282,114	191,211	3,310	1,714	4,455,005

The accompanying table furnishes for the Censuses of 1891, 1901, and 1911, a comparison of the numbers recorded in the principal denominations and religions. An unsatisfactory feature of the table is the large number who stated their religion simply as "Protestant" or "Catholic." Presumably, the majority of the latter were "Roman Catholic," but an appropriate allocation of the undefined Protestants could not readily be made. The returns for 1911 included no fewer than 109,861 Protestants (undefined) and 75,379 Catholics (undefined).

POPULATION OF THE COMMONWEALTH AT THE CENSUSES OF 1891, 1901, AND 1911 CLASSIFIED ACCORDING TO RELIGION AND SEX.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

Religion.	Males.			Females.			Persons.		
	Census of 5th April, 1891.	Census of 31st Mch., 1901.	Census of 3rd April, 1911.	Census of 5th April, 1891.	Census of 31st Mch., 1901.	Census of 3rd April, 1911.	Census of 5th April, 1891.	Census of 31st Mch., 1901.	Census of 3rd April, 1911.
I. CHRISTIAN—									
Church of England ..	660,126	783,413	884,634	574,087	714,163	825,809	1,234,213	1,497,576	1,710,443
Presbyterian ..	187,328	221,601	289,591	164,592	204,504	268,745	351,920	426,105	558,336
Methodist ..	199,597	251,611	269,641	197,769	252,490	278,165	397,366	504,101	547,806
Baptist	35,129	42,662	45,661	37,149	46,676	51,413	72,278	89,338	97,074
Congregational ..	36,289	35,603	35,367	36,426	37,958	38,679	72,715	73,561	74,046
Lutheran	41,795	43,329	40,993	29,031	31,602	31,402	70,826	75,021	72,395
Church of Christ ..	7,128	11,265	17,382	7,714	12,927	21,366	14,842	24,192	38,748
Salvation Army ..	16,806	14,802	12,322	16,625	16,298	14,343	33,431	31,100	26,665
Seventh Day Advnt's.	336	1,411	2,536	377	1,921	3,559	713	3,332	6,095
Unitarian	2,501	1,620	1,307	1,388	1,009	868	3,889	2,629	2,175
Protestant (undefined)	17,416	11,485	63,079	12,449	9,073	46,782	29,865	20,558	109,861
Roman Catholic ..	363,780	433,504	465,803	341,627	417,116	455,622	705,407	850,620	921,425
Greek Catholic ..	559	1,075	2,172	63	239	474	622	1,314	2,646
Catholic (undefined)	4,351	2,748	38,772	4,089	2,431	36,607	8,440	5,179	75,379
Others	10,252	10,944	15,796	9,150	10,879	15,524	19,402	21,823	31,320
TOTAL	1,583,393	1,867,073	2,185,056	1,432,536	1,759,376	2,080,358	3,015,929	3,626,449	4,274,414
II. NON-CHRISTIAN—									
Hebrew	7,634	8,137	9,165	6,171	7,102	8,122	13,805	15,239	17,287
Confucian			5,036			158			5,194
Mohammedan	41,427	34,712	3,706	1,339	954	202	42,766	35,666	3,908
Buddhist ..			3,110			159			3,269
Pagan ..			1,422			25			1,447
Others, ...	303	1,784	5,195	69	682	485	372	2,466	5,680
TOTAL ..	49,364	44,633	27,634	7,579	8,738	9,151	56,943	53,371	36,785
III. INDEFINITE—									
Freethinker ...	12,551	7,863	2,753	2,934	1,319	501	15,485	9,182	3,254
Agnostic	728	834	2,546	134	137	538	862	971	3,084
No Denomination ..	9,408	13,620	1,568	3,824	6,137	1,120	13,232	19,757	2,688
Others	1,078	638	3,531	653	463	2,116	1,731	1,101	5,647
TOTAL ..	23,765	22,955	10,398	7,545	8,056	4,275	31,310	31,011	14,673
IV. NO RELIGION—									
No Religion ..	5,648	5,149	7,559	1,421	1,333	1,692	7,069	6,482	9,251
Atheist	574	245	516	213	29	63	787	274	579
Others	169	19	164	59	4	22	228	23	186
TOTAL ..	6,391	5,413	8,239	1,693	1,366	1,777	8,084	6,779	10,016
V. OBJECT TO STATE	26,307	28,443	55,766	13,093	13,688	27,237	39,400	42,131	83,003
VI. UNSPECIFIED ..	14,819	9,411	25,942	7,907	4,649	10,172	22,726	14,060	36,114
GRAND TOTAL ..	1,704,039	1,977,928	2,313,035	1,470,353	1,795,873	2,141,970	3,174,392	3,773,801	4,455,005

6. **Conjugal Condition.**—In the following tables particulars are given concerning the population of the several States and Territories on 3rd April, 1911, classified according to conjugal condition and age :—

AUSTRALIAN POPULATION AT 3rd APRIL, 1911, CLASSIFIED ACCORDING TO CONJUGAL CONDITION AND AGE.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

MALES.

Age Group.	States.						Territories.		Total C'wealth.
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern.	Federal.	
				NEVER MARRIED.					
Under 15 ..	266,274	202,261	101,246	64,168	44,305	34,029	242	273	712,798
15 & under 21	99,446	80,655	39,270	25,648	14,432	11,630	106	119	271,306
21 „ 45	153,938	113,648	65,276	36,380	38,446	14,707	733	225	423,353
45 „ 65	27,381	18,713	13,684	4,749	7,294	2,158	862	52	74,893
65 & upwards	7,222	5,527	2,954	938	942	413	63	10	18,069
Unspecified ..	2,089	1,800	1,148	459	641	263	54	4	6,458
Total ..	556,350	422,604	223,578	132,342	106,060	63,200	2,060	683	1,506,877
				MARRIED.					
Under 15 ..	2	1	..	..	..	..	..	..	3
15 & under 21	1,097	566	260	210	99	114	1	..	2,347
21 „ 45	157,224	111,942	54,549	37,708	32,725	17,488	236	125	411,997
45 „ 65	95,496	79,536	34,056	24,987	15,630	11,291	304	114	261,414
65 & upwards	20,086	18,594	7,159	5,879	1,997	2,389	32	33	56,169
Unspecified ..	1,523	1,111	522	318	251	188	2	4	3,919
Total ..	275,428	211,750	96,546	69,102	50,702	31,470	575	276	735,849
				WIDOWED.					
Under 15 ..	..	..	..	..	..	..	..	..	..
15 & under 21	8	2	2	2	1	..	..	..	15
21 „ 45	3,951	2,956	1,540	865	1,153	402	12	6	10,885
45 „ 65	9,855	7,496	3,740	2,268	2,029	1,102	46	15	26,551
65 & upwards	8,903	9,220	3,169	2,457	962	1,021	6	9	25,747
Unspecified ..	170	146	62	35	35	28	1	..	477
Total ..	22,887	19,820	8,513	5,627	4,180	2,553	65	30	63,675
				DIVORCED.					
Under 15 ..	..	..	..	..	..	..	..	..	..
15 & under 21	..	..	..	1	1	..	..	..	2
21 „ 45	569	258	115	45	99	24	..	..	1,110
45 „ 65	566	267	81	39	77	31	1	..	1,062
65 & upwards	81	41	9	7	6	3	..	1	148
Unspecified ..	14	9	9	1	4	1	..	..	38
Total ..	1,230	576	214	93	187	59	1	1	2,360

AUSTRALIAN POPULATION AT 3RD APRIL, 1911—*continued.*

MALES—*continued.*

Age Group.	States.						Territories.		Total C'wealth.
	N.S.W.	Vic.	Q'land	S. Aust.	W. Aust.	Tas.	Northern.	Federal.	
NOT STATED.									
Under 15 ..	..	..	..	..	..	..	..	..	..
15 & under 21	..	..	..	..	..	..	..	..	..
21 „ 45	781	375	231	61	146	158	21	2	1,775
45 „ 65	252	189	155	24	60	77	8	..	765
65 & upwards	76	85	28	4	9	22	1	..	225
Unspecified ..	*694*	*193*	*241*	*105*	*221*	*52*	*3*	..	*1,509*
Total ..	1,803	842	655	194	436	309	33	2	4,274
FEMALES.									
NEVER MARRIED.									
Under 15 ..	259,975	196,838	98,389	62,681	43,229	32,598	235	275	694,220
15 & under 21	90,844	78,170	34,851	24,409	11,969	10,919	63	104	251,329
21 „ 45	103,042	101,293	32,510	28,098	12,199	11,209	43	66	288,460
45 „ 65	10,689	15,274	2,030	3,288	1,048	1,563	2	1	33,895
65 & upwards	1,868	2,027	322	543	110	330	..	1	5,201
Unspecified ..	1,185	1,255	377	311	252	174	3	4	3,561
Total ..	467,603	394,857	168,479	119,330	68,807	56,793	346	451	1,276,666
MARRIED.									
Under 15 ..	6	6	4	2	..	1	..	..	19
15 & under 21	6,977	3,303	2,280	1,166	988	818	18	2	15,552
21 „ 45	181,426	134,801	62,181	43,392	33,554	20,063	147	141	475,705
45 „ 65	74,473	65,795	24,769	20,798	9,945	9,048	39	70	204,937
65 & upwards	11,245	10,748	3,998	3,521	917	1,338	2	16	31,785
Unspecified ..	2,089	1,812	682	506	376	305	1	4	5,775
Total ..	276,216	216,465	93,914	69,385	45,780	31,573	207	233	733,773
WIDOWED.									
Under 15 ..	..	..	..	..	..	..	..	..	..
15 & under 21	29	25	9	6	7	5	..	..	81
21 „ 45	6,936	6,143	2,487	1,469	1,407	666	9	5	19,122
45 „ 65	19,234	19,329	6,200	5,090	2,617	2,060	6	17	54,553
65 & upwards	16,959	21,515	4,924	5,657	1,692	2,306	4	15	53,072
Unspecified ..	413	504	100	112	62	49	..	..	1,240
Total ..	43,571	47,516	13,720	12,334	5,785	5,086	19	37	128,068
DIVORCED.									
Under 15 ..	..	..	..	..	..	..	..	..	..
15 & under 21	4	4	..	..	..	..	..	..	8
21 „ 45	774	396	57	34	76	21	..	1	1,359
45 „ 65	360	231	24	24	26	12	..	..	677
65 & upwards	36	27	4	3	..	1	..	..	71
Unspecified ..	16	7	..	1	1	..	..	..	25
Total ..	1,190	665	85	62	103	34	..	1	2,140

AUSTRALIAN POPULATION AT 3RD APRIL, 1911—*continued.*

FEMALES—*continued.*

Age Group.	States.						Territories.		Total C'wealth.
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern.	Federal.	
				NOT STATED.					
Under 15 ..	..	..	..	..	..	..	..	..	
15 & under 21	96	62	20	24	10	9	2	..	223
21 „ 45	186	113	42	29	32	59	2	..	463
45 „ 65	48	41	16	6	2	46	..	..	159
65 & upwards	26	39	6	6	1	18	..	..	96
Unspecified ..	100	202	25	24	29	2	..	..	382
Total ..	456	457	109	89	74	134	4	..	1,323

SUMMARY OF PERSONS RECORDED IN EACH STATE AND TERRITORY OF THE COMMONWEALTH AT THE CENSUS OF 3rd APRIL, 1911, CLASSIFIED ACCORDING TO CONJUGAL CONDITION AND SEX.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

Conjugal Condition.	States.						Territories.		Total C'wealth.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern.	Federal.	
				MALES.					
Never married	556,850	422,604	223,578	132,342	100,060	63,200	2,060	683	1,506,877
Married ..	275,428	211,750	96,546	69,102	50,702	31,470	575	276	735,849
Widowed ..	22,887	19,820	8,513	5,627	4,180	2,553	65	30	63,675
Divorced ..	1,230	575	214	93	187	59	1	1	2,360
Not stated ..	1,803	842	655	194	436	309	33	2	4,274
Total ..	857,698	655,591	329,506	207,358	161,565	97,591	2,734	992	2,313,035
				FEMALES.					
Never married	467,603	394,857	168,479	119,330	68,807	56,793	346	451	1,276,656
Married ..	276,216	216,465	93,914	69,385	45,780	31,573	207	233	733,773
Widowed ..	43,571	47,516	13,720	12,334	5,785	5,086	19	37	128,068
Divorced ..	1,190	665	85	62	103	34	..	1	2,140
Not stated ..	456	457	109	89	74	134	4	..	1,323
Total ..	789,036	659,960	276,307	201,200	120,549	93,620	576	722	2,141,970
				PERSONS.					
Never married	1,023,953	817,461	392,057	251,672	174,867	119,993	2,406	1,134	2,783,543
Married ..	551,644	428,215	190,460	138,487	96,482	63,043	782	509	1,469,622
Widowed ..	66,458	67,336	22,233	17,961	9,965	7,639	84	67	191,743
Divorced ..	2,420	1,240	299	155	290	93	1	2	4,500
Not stated ..	2,259	1,299	764	283	510	443	37	2	5,597
Total ..	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

7. Education.—In the following table are contained particulars of the education of the population of the States and Territories of the Commonwealth as at the date of the Census of 3rd April, 1911. Of the total population of 4,455,005, there were 3,650,030, or 81.93 per cent., who were able to read and write in the English language, and 26,210, or

0.50 per cent., who were able to read and write in a foreign language, though unable to read or write English. Of the remainder no fewer than 525,633 were recorded as being under five years of age, all of whom were classed at the Census under the head of "Cannot read."

EDUCATION OF THE POPULATION OF THE STATES AND TERRITORIES OF THE COMMONWEALTH OF AUSTRALIA AT THE CENSUS OF 3rd APRIL, 1911.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

States and Territories.	English Language.		Foreign Language only.		Cannot Read.	Not Stated.	Total
	Read and Write.	Read only.	Read and Write.	Read only.			
MALES.							
STATES—							
New South Wales ..	696,258	2,565	5,889	497	134,215	18,274	857,698
Victoria	547,753	1,271	3,572	532	88,995	13,468	655,591
Queensland ..	265,896	1,136	6,185	678	49,406	6,205	329,506
South Australia ..	169,508	556	1,156	102	31,891	4,145	207,358
Western Australia	128,648	311	4,371	303	22,524	5,408	161,565
Tasmania ..	76,247	456	181	20	18,244	2,443	97,591
TERRITORIES—							
Northern.. ..	1,126	4	852	29	642	81	2,734
Federal	820	9	2	..	140	21	992
Total Commonwealth	1,886,256	6,308	22,208	2,161	346,057	50,045	2,313,035
FEMALES.							
STATES—							
New South Wales ..	645,022	3,140	650	61	123,808	16,355	789,036
Victoria	555,675	2,626	665	66	84,449	16,479	659,960
Queensland ..	225,086	1,272	1,772	252	43,787	4,138	276,307
South Australia ..	165,634	993	531	88	29,987	3,967	201,200
Western Australia	96,702	256	317	15	20,724	2,535	120,549
Tasmania ..	74,795	409	30	4	16,235	2,147	93,620
TERRITORIES—							
Northern.. ..	292	..	37	..	203	44	576
Federal	568	5	..	..	132	17	722
Total Commonwealth	1,763,774	8,701	4,002	486	319,325	45,682	2,141,970
PERSONS.							
STATES—							
New South Wales ..	1,341,280	5,705	6,539	558	258,023	34,629	1,646,734
Victoria	1,103,428	3,897	4,237	598	173,444	29,947	1,315,551
Queensland ..	490,982	2,408	7,957	930	93,193	10,343	605,813
South Australia ..	335,142	1,549	1,687	190	61,878	8,112	408,558
Western Australia	225,350	567	4,688	318	43,248	7,943	282,114
Tasmania ..	151,042	865	211	24	34,479	4,590	191,211
TERRITORIES—							
Northern.. ..	1,418	4	889	29	845	125	3,310
Federal	1,388	14	2	..	272	38	1,714
Total Commonwealth	3,650,030	15,099	26,210	2,647	665,382	95,727	4,455,005

From the following table, which gives for the Commonwealth as a whole particulars of education in conjunction with age, it will be seen that the major portion of those who were unable to read were under the age of 9. Of persons aged 20 and upwards only about 2¼ per cent. were unable to read.

POPULATION OF THE COMMONWEALTH OF AUSTRALIA AT THE CENSUS OF 3rd APRIL, 1911, CLASSIFIED ACCORDING TO EDUCATION AND AGE.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

Age.	English Language.		Foreign Language only.		Cannot Read.	Not Stated.	Total.
	Read and Write.	Read only.	Read and Write.	Read only.			
MALES.							
0–4	..	..	..	..	267,411	..	267,411
5–9	177,463	1,131	53	24	39,764	11,151	229,586
10–14	212,935	89	146	9	1,444	1,181	215,804
15–19	221,279	109	800	46	1,813	2,784	226,831
20 and upwards ..	1,266,625	4,911	20,813	2,062	34,307	32,284	1,361,002
Unspecified.. ..	7,954	68	396	20	1,318	2,645	12,401
Total	1,886,256	6,308	22,208	2,161	346,057	50,045	2,313,035
FEMALES.							
0–4	..	..	..	..	258,222	..	258,222
5–9	173,567	1,116	46	8	36,536	12,387	223,660
10–14	209,904	75	95	6	1,062	1,215	212,357
15–19	218,273	50	101	5	847	2,429	221,705
20 and upwards ..	1,153,611	7,375	3,735	462	21,819	28,041	1,215,043
Unspecified.. ..	8,419	85	25	5	839	1,610	10,983
Total	1,763,774	8,701	4,002	486	319,325	45,682	2,141,970
PERSONS.							
0–4	..	..	..	..	525,633	..	525,633
5–9	351,030	2,247	99	32	76,300	23,538	453,246
10–14	422,839	164	241	15	2,506	2,396	428,161
15–19	439,552	159	901	51	2,660	5,213	448,536
20 and upwards ..	2,420,236	12,296	24,548	2,524	56,126	60,325	2,576,045
Unspecified.. ..	16,373	153	421	25	2,157	4,255	23,384
Total	3,650,030	15,009	26,210	2,647	665,382	95,727	4,455,005

8. School Attendances.—In the following table are set out particulars of school attendances of children aged last birthday from 6 to 13 years at the Census of 3rd April, 1911 :—

SCHOOL ATTENDANCES OF CHILDREN AGED LAST BIRTHDAY FROM 6 TO 13 YEARS IN THE STATES AND TERRITORIES OF THE COMMONWEALTH OF AUSTRALIA AT THE CENSUS OF 3rd APRIL, 1911.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

NOTE.—In this table the term " State School " comprises all schools, whether primary or secondary, which are under the direct control of the State.

States and Territories.	Number being educated at—			Number recorded as "scholar," but class of school not stated.	Number not indicated as receiving instruction.	Total.
	State School.	Private School.	*Home.*			
MALES.						
STATES—						
New South Wales ..	91,979	19,107	3,436	3,809	11,574	129,905
Victoria	78,185	15,367	1,198	1,826	6,031	102,607
Queensland ..	38,167	5,184	1,517	904	5,089	50,861
South Australia ..	22,817	3,548	521	380	4,409	31,675
Western Australia ..	15,289	3,239	558	508	1,653	21,247
Tasmania	11,042	2,113	459	485	2,832	16,931
TERRITORIES—						
Northern	32	25	9	1	56	123
Federal	98	..	22	4	25	149
Total Commonwealth..	257,609	48,583	7,720	7,917	31,669	353,498
FEMALES.						
STATES—						
New South Wales ..	84,129	23,329	4,191	3,279	12,802	127,730
Victoria	73,136	17,447	1,602	1,832	6,493	100,510
Queensland ..	35,656	6,765	1,713	1,032	4,759	49,925
South Australia ..	21,343	4,005	631	762	4,293	31,034
Western Australia ..	13,906	4,015	681	404	1,813	20,819
Tasmania	10,267	2,496	594	477	2,501	16,335
TERRITORIES—						
Northern	32	20	6	..	69	127
Federal	85	3	13	5	27	133
Total Commonwealth..	238,554	58,080	9,431	7,791	32,757	346,613
PERSONS.						
STATES—						
New South Wales* ..	176,108	42,436	7,627	7,088	24,376	257,635
Victoria	151,321	32,814	2,800	3,658	12,524	203,117
Queensland ..	73,823	11,949	3,230	1,936	9,848	100,786
South Australia ..	44,160	7,553	1,152	1,142	8,702	62,709
Western Australia ..	29,195	7,254	1,239	912	3,466	42,066
Tasmania	21,309	4,609	1,053	962	5,333	33,266
TERRITORIES—						
Northern	64	45	15	1	125	250
Federal	183	3	35	9	52	282
Total Commonwealth..	496,163	106,663	17,151	15,708	64,426	700,111

9. Blind Persons and Deaf Mutes.—The following table contains particulars of the number of blind persons and deaf mutes as recorded at the date of the Census of 3rd April, 1911:—

NUMBER OF BLIND PERSONS AND DEAF MUTES IN THE SEVERAL STATES OF THE COMMONWEALTH AT THE CENSUS OF 3rd APRIL, 1911.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

States.	Blind.			Deaf and Dumb.		
	Males.	Females.	Persons.	Males.	Females.	Persons.
New South Wales ..	591	420	1,011	330	310	640
Victoria	595	507	1,102	280	255	535
Queensland	213	170	383	160	97	257
South Australia	192	166	358	134	112	246
Western Australia ..	85	57	142	40	36	76
Tasmania	78	68	146	54	44	98
Total Commonwealth ..	1,754	1,388	3,142 (*a*)	998	854	1,852 (*a*)

(*a*) Including 21 blind deaf mutes.

§ 11. Naturalization.

1. The Commonwealth Act.—The Commonwealth Constitution empowers the Commonwealth Parliament to make laws with respect to "Naturalization and Aliens," a power which was exercised when the "Naturalization Act of 1903" was passed. This Act was assented to on 13th October of that year, and came into force on 1st January, 1904, in accordance with a proclamation by *Gazette* of 14th November, 1903.

In 1917 it was considered advisable to make more stringent the provisions of the Act, notably with reference to the question of dual nationality, circumstances arising out of the war having clearly demonstrated that while many naturalized persons of enemy birth were enjoying the rights, privileges, and protection guaranteed to Australian citizens, they were still pledged to allegiance to their Mother Country. As a result the "Naturalization Act 1917," containing a number of new and important provisions, was passed by Parliament and was assented to on 20th September of the same year.

In 1920, an Act was passed, which superseded the Acts passed in 1903 and 1917. The purpose of this measure, which was known as the "Nationality Act 1920," and which came into operation on 1st January, 1921, was to consolidate and amend the law regarding naturalization. The most important provision of this Act was the adoption of Part II. of the "British Nationality and Status of Aliens Act 1914," which conferred on any person naturalized under the Act the rights of a British subject, not only in the Commonwealth but also in Great Britain and in any other parts of the Empire which have adopted Part II. of the British Act.

Prior to the passing of the original Act the issue of certificates of naturalization had been a function of the State Governments, carried out under Acts of the several State Legislatures, which, however, did not differ materially from each other, and furnished the basis on which the Commonwealth Act was drafted. From 1st January, 1904, when the Commonwealth Act of 1903 became operative, the right to issue certificates of naturalization in the Commonwealth has been vested exclusively in the Federal Government, but all certificates or letters of naturalization issued under the several State Acts prior to that date entitle the recipients to be deemed to be naturalized under the Commonwealth Act.

The grant of a certificate of naturalization entitles the recipient to all the rights and privileges, and renders him subject to all the obligations of a natural-born British subject, with the exception that where, by any Commonwealth or State Constitution or

Act, a distinction is made between natural-born British subjects and naturalised persons, such distinction shall hold good in the case of all persons naturalized under the Commonwealth Act.

The "Nationality Act 1920" provides that applications for certificates of naturalization must be made to the Governor-General, the qualifications required in an applicant being :—

(i) Residence in Australia continuously for not less than one year immediately preceding his application for naturalization, and previous residence, either in the Commonwealth or in some other part of His Majesty's dominions, for a period of four years within the last eight years before the application.
(ii) Good character and an adequate knowledge of the English language.
(iii) Intention to settle in the British Empire.

The applicant is required to furnish the following particulars in support of his application :—

His own statutory declaration stating—

(a) Name; (b) Age; (c) Birthplace; (d) Occupation; (e) Residence; (f) Length of residence in the British Empire; (g) Intention to settle in the British Empire; (h) Such other particulars as are prescribed.

He must also furnish :—

(i) Newspapers containing copies of an advertisement, as prescribed, of his intention to seek naturalization.
(ii) Certificates of character from three natural-born British subjects, two of whom must be householders, and the third a Justice of the Peace, Postmaster, State School Teacher, or Police Officer.
(iii) Satisfactory evidence that he has an adequate knowledge of the English language.

Any person may make representation by statutory declaration with regard to an applicant for naturalization. The contents of such declaration will not be disclosed other than with the consent of the person making the declaration, except for the purpose of a prosecution for perjury.

The Governor-General in Council may, in his absolute discretion, and with or without assigning any reason, grant or withhold a certificate of naturalization as he thinks most conducive to the public good; but the issue of a certificate of naturalization will not be effected until the applicant furnishes a certificate signed by a Justice of the High Court of Australia, a State Judge, or a Magistrate, certifying that he has renounced allegiance to the country of which he was a subject at the time of his application for naturalization, and that he has taken an oath or affirmation of allegiance to the Crown in accordance with the Constitution. The grant of a certificate is made free of charge.

The Governor-General may, in his absolute discretion, in any special case in which he thinks fit, grant a certificate of naturalization to any minor, whether or not the conditions required by this Act have been complied with.

In addition to naturalization by grant of certificate, the Act makes provision for—

(i) Naturalization by marriage.
(ii) Naturalization by residence with naturalized parent.

The former relates to the case of a woman who is not herself a British subject, but is married to a British subject; the latter to that of a person who is not a natural-born British subject, but who has resided at any time during infancy in Australia with a father or mother who at the time was a naturalized British subject. In each instance the person concerned is deemed to be naturalized under the Commonwealth Act.

The Governor-General may revoke any certificate of naturalization where—

(i) It is proved that the certificate has been obtained by false representation or fraud, or by concealment of material circumstances, or that the person to whom the certificate is granted has shewn himself by act or speech to be disaffected or disloyal to His Majesty.
(ii) he is satisfied that the person to whom the certificate was granted either—
    (a) has during the war in which His Majesty is engaged unlawfully traded or communicated with the enemy or with the subject of an enemy State, or been engaged in or associated with any business which is to his knowledge carried on in such manner as to assist the enemy in such war; or

(*b*) has within five years of the date of the grant of the certificate been sentenced by any court in His Majesty's dominions to imprisonment for a term of not less than twelve months, or to a term of penal servitude, or to a fine of not less than one hundred pounds; or

(*c*) was not of good character at the date of the grant of the certificate; or

(*d*) has since the date of the grant of the certificate been for a period of not less than seven years ordinarily resident out of His Majesty's dominions otherwise than as a representative of a British subject, firm or company carrying on business, or an institution established in His Majesty's dominions, or in the ordinary service of the Crown, and has not maintained substantial connexion with His Majesty's dominions; or

(*e*) remains according to the law of a State at war with His Majesty a subject of that State;

and that (in any case) the continuance of the certificate is not conducive to the public good.

Where a wife and any minor children have acquired British nationality under the certificate issued to the husband and father and such certificate is subsequently revoked, the wife and children remain British subjects unless the Governor-General otherwise declares, or unless they themselves elect to make a declaration of alienage.

In accordance with the Act, a list of persons naturalized, with their addresses, is published in the *Commonwealth Gazette* from time to time.

The administration of the Act is carried out by the Home and Territories Department, and the Governor-General is authorised to make such regulations as are necessary or convenient for giving effect to the Act.

2. Statistics of Naturalization.—Particulars relative to the nationalities of the recipients of certificates of naturalization issued under the Act during each of the five years 1916 to 1920, and to the countries from which such recipients had come, are shewn in the following table:—

COMMONWEALTH NATURALIZATION CERTIFICATES GRANTED, 1916 TO 1920.

Nationalities of Recipients.	No. of Certificates Granted.					Countries from which Recipients of Commonwealth Certificates had come.	No. of Certificates Granted.				
	1916.	1917.	1918.	1919.	1920.		1916.	1917.	1918.	1919.	1920.
Italian ..	42	35	8	34	139	Great Britain ..	184	102	82	66	10[illegible]
Swedish ..	152	57	38	32	37	Italy	34	30	9	29	12[illegible]
Danish ..	174	65	52	50	55	Germany ..	72	36	13	13	5[illegible]
Russian ..	58	50	30	20	18	America (North)	85	42	12	28	5[illegible]
German ..	106	48	15	11	67	Sweden ..	69	21	12	8	2[illegible]
Norwegian ..	95	54	36	17	24	Denmark ..	99	32	19	18	2[illegible]
Greek ..	3	7	21	49	80	Norway ..	48	25	22	10	1[illegible]
American (North)	65	24	..	11	22	Greece ..	3	5	13	35	4[illegible]
Dutch ..	42	33	21	10	27	France ..	17	15	10	8	1[illegible]
Swiss ..	36	24	12	14	29	Egypt ..	..	4	1	10	2[illegible]
French ..	30	27	11	8	22	America (South)	24	5	5	..	..
Spanish ..	11	11	3	6	20	Holland ..	20	18	6	..	..
Belgian ..	6	4	5	4	5	Russia ..	8	7	4	..	..
Rumanian ..	4	..	2	1	2	South Africa ..	23	7	5	9	1[illegible]
Portuguese ..	..	4	2	1	3	Belgium ..	9	6	7	6	1[illegible]
American (South)	6	..	..	..	..	New Zealand ..	18	6	6	6	1[illegible]
Austrian ..	5	1	1	2	2	Switzerland ..	20	15	3	6	1[illegible]
Mexican ..	1	..	..	1	..	Spain ..	4	6	2	..	1[illegible]
Chinese ..	3	..	..	1	..	Austria ..	2	..	..	..	..
Serbian ..	2	1	4	..	3	India ..	3	..	..	..	..
Syrian ..	1	..	..	1	..	New Caledonia ..	7	6	1	..	..
Polish ..	..	..	..	6	17	Argentine ..	9	3	1	6	..
Finnish ..	..	..	..	15	37	Canada ..	5	7	2	..	..
Others ..	..	..	..	..	21	Finland ..	3	4	..	..	..
						Other Countries	35	40	27	37	7[illegible]
Total ..	842	445	261	295	620	Total ..	842	445	261	295	62[illegible]

The following table furnishes particulars concerning the States in which the recipients of Commonwealth certificates of naturalization during the years 1909 to 1920 were resident :—

NATURALIZATION CERTIFICATES GRANTED BY COMMONWEALTH, 1909 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern Territory.	C'wealth.
1909 ..	644	507	378	600	221	61	..	2,431
1910 ..	665	329	333	299	187	36	..	1,849
1911 ..	565	491	489	282	248	22	..	2,077
1912 ..	565	296	464	343	243	35	..	1,945
1913 ..	603	434	525	355	342	30	2	2,291
1914 ..	1,327	1,202	625	552	520	43	3	4,272
1915 ..	411	378	345	260	191	16	1	1,602
1916 ..	260	211	152	82	115	20	2	842
1917 ..	131	131	84	45	46	7	1	445
1918 ..	85	70	59	19	25	3	..	261
1919 ..	103	70	67	21	29	5	..	295
1920 ..	208	136	167	50	61	5	2	629

3. Census Particulars.—On the Personal Card used at the Census of 3rd April, 1911, an inquiry as to naturalization was made, all persons who were British subjects by naturalization being required to indicate the fact by inserting the letter N in the place provided for the purpose on the card. In addition, in checking the cards in the Census Bureau, instructions were given that cases of women naturalized by marriage to British subjects, and of children naturalized by residence with parents who have become British subjects, should be duly taken into account by the insertion of the letter N if originally omitted. The results of the tabulation will be found in the following table :—

NUMBER OF NATURALIZED BRITISH SUBJECTS RECORDED AT THE AUSTRALIAN CENSUS OF 3rd APRIL, 1911.

Particulars.	States.						Territories.		C'wealth.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern.	Federal.	
Males ..	11,333	8,445	11,025	4,141	3,544	734	457	4	39,683
Females ..	2,808	2,182	5,562	1,763	646	293	13	1	13,268
Persons ..	14,141	10,627	16,587	5,904	4,190	1,027	470	5	52,951

Corresponding particulars for the Census of 1921 are not yet available.

§ 12. Graphical Representation of Growth of Population.

1. General.—The nature of the fluctuations of the numbers representing (*a*) total population, or those representing (*b*) births and deaths from year to year, or (*c*) the natural increase, *i.e.*, the difference of births and deaths, or (*d*) the net immigration, all of which taken together make up the element of increase of total population, cannot be readily discerned from mere numerical tables. It has been deemed desirable, therefore to furnish a series of graphical representations showing in some cases the characteristics

of these elements from 1788 to 1920, and in others from 1860 to 1920. The graphs furnish at a glance a clear indication of the changes taking place, and of their significance from year to year. The great importance of such representations is that only by their means can the most recent changes be justly apprehended, either in their relation to the past, or their meaning for the future.

2. **Graphs of Total Population** (page 1131).—These graphs furnish interesting evidence of the comparatively slow rate of growth of the several States and of the Commonwealth as a whole, during the period from the foundation of settlement in 1788 until 1832. From that year onwards to 1851, a moderately increased rate of progress was experienced. In 1851 gold was discovered in Australia, and the effect of this discovery on the population of the Commonwealth is shewn by the steepness of the curves for New South Wales and Victoria, and for the Commonwealth, from this point onwards for a series of years. The sudden breaks in the continuity of the curves for New South Wales indicate the creation of new colonies, and their separation from the mother colony. Thus, Tasmania came into existence in 1825, Victoria in 1851, and Queensland in 1859. Owing to the extensive gold discoveries in Victoria, its population increased so rapidly that in 1854 its total passed that of New South Wales, and remained in excess until 1892, when the mother State again assumed the lead, which it has since maintained. The rate of increase in New South Wales is large, but the State is still only sparsely populated. A feature of the New South Wales curve is its comparative regularity as compared with that of Victoria, the population of which State increased with great rapidity from 1851 to 1860, less rapidly from 1861 to 1878, with a further period of increased rapidity from 1878 to 1891, and a period of very slow and fluctuating growth from the latter year to 1914. In 1915 and 1916 the population decreased, but in 1917, 1918, 1919, and 1920 increases were again recorded. Victoria, however, has a population density more than double that of Tasmania, and nearly three times that of New South Wales.

In the case of Queensland, the curve indicates a rate of growth which, though varying somewhat, has on the whole been satisfactory, and at times very rapid. Periods of particularly rapid increase occurred from 1862 to 1865, from 1873 to 1877, and from 1881 to 1889. With the exception of the year 1916 the population of this State has always increased each year up to 1920. The population of Queensland passed that of Tasmania in 1867, and that of South Australia in 1885. The population density of Queensland is about one-seventeenth of that of Victoria.

The curve for South Australia indicates that with fluctuations more or less marked, the population increased at a moderate rate from the date of the effective settlement of the colony in 1836 until 1884, and that from that point onwards, a diminished rate of increase was experienced, with slight decreases in 1886, 1888, 1900, 1902, 1915, and 1916. In 1917, 1918, 1919, and 1920 increases were again recorded. The population of South Australia passed that of Tasmania in 1852. Its density is nearly one and one-fifth of that of Queensland, about one-fifth of that of New South Wales, and about one-fourteenth of that of Victoria.

The curve for Western Australia indicates that the population increased regularly but very slowly until 1886, when the discovery of gold in the Kimberley division caused an influx of population. The effects of the further rich discoveries of gold in the Murchison and Coolgardie districts in 1891 and 1892, are clearly shewn in the rapid increase of population in those and subsequent years to 1897. Two years of retarded progress then occurred, followed by a satisfactorily rapid rate of increase from 1899 to 1906, a slight decline in 1907, and a further advance in 1908 and subsequent years to 1914. Decreases occurred in 1915 and 1916, with increases in 1917, 1918, 1919, and 1920. The population of Western Australia became greater than that of Tasmania in 1899. Its density is little more than one-fourth of that of South Australia, one-third of that of Queensland, one-nineteenth of that of New South Wales, and about one-fiftieth of that of Victoria.

The Tasmanian population curve indicates a comparatively slow rate of growth throughout. Its most noticeable feature is a retardation in increase in 1852 and subsequent years, brought about by the discovery of gold on the mainland. The population density of Tasmania is about 30 per cent. greater than that of New South Wales, and a little less than half of that of Victoria.

3. Graphs for Commonwealth of Male and Female Population (page 1132).—These curves shew the relative growth of male and female population of the Commonwealth, and it will be seen that the former are far more liable to marked fluctuations than the latter. The curves representing an increase of population on the basis of the United States rate for 1790 to 1860, indicate that on the whole the female rate of increase in the Commonwealth has been a fairly satisfactory one, and that from 1860 to 1893 the same might be said of the male population. From 1893 onwards, however, the male population of the Commonwealth has fallen considerably below this rate.

Although the rate of increase of the female population from 1860 onwards is on the whole very satisfactory, it should be noted that the total number at the beginning of this period was relatively very small, and that from 1894 onwards there is a falling-off in the rate of increase, similar to that experienced in the case of males.

4. Graphs for each State of Male and Female Population *(page 1133).*—These graphs, shewing the relative progress in male and female population for each of the States, disclose the fact that in all cases the female population is much less liable to marked fluctuations than the male, and further, that in cases where rapid increases have taken place in the latter, a similar, but much more gradual, increase is in evidence in the former, commencing usually, however, somewhat later than in the case of the males. A comparison of the graphs of each of the States with that of the Commonwealth shews that the fluctuations in the latter case are smaller than in the former. This is largely due to internal migrations of the male element of the population, brought about by various causes, amongst which mining developments figure prominently.

5. Graphs for Natural Increase of Population, Commonwealth and States (page 1136).—The graphs indicate that, with the exception of certain marked variations, the natural increase of the population of the Commonwealth, *i.e.*, the excess of births over deaths, advanced with fair rapidity from 1860 to 1892, in which year it attained its maximum, and then fell rapidly till 1898. A subsequent rise to 1900 was followed by a continuous fall for the three years succeeding, viz., to 1903. The recovery shews a fairly rapid rise to 1909, during which year the natural increase was 16.35 per 1,000 of mean population. In succeeding years a correspondingly high rate was maintained with minor fluctuations until 1914, when a record of 17.54 was obtained. In 1915 and 1916 the rate declined to 16.59 and 15.74 respectively, but improved to 16.71 in 1917. In 1918 it declined to 15.16, and in 1919 a further heavy decline to 10·96 was experienced. The rate for 1920 was 15.12. In 1912 a rate of 17.42 was obtained; this was, however, an *over-statement of the true natural increase* for the year, owing to the fact that the introduction of "Maternity Allowances" in 1912 resulted in expediting the registration of births. The years in which the natural increase of the Commonwealth was at its highest were 1865, 1871, 1881, 1892, 1900, and 1914, and the years of extraordinarily low rates of natural increase were 1866, 1875, 1882, 1898, 1903, and 1919. The low rate of 1898 was due in large measure to a phenomenally high death rate experienced in practically all the States in that year, when an epidemic of measles was prevalent throughout the Commonwealth. The low rate of 1903 was brought about by the low birth rates and the high death rates which accompanied the drought of 1902–3, while the advance in the rate of natural increase since 1903 has been collateral with the marked improvement in material conditions experienced throughout the Commonwealth during that period. The very low rate for 1919 was due to a low birth rate and a very high death rate, caused by an epidemic of influenza.

6. Graphs showing Total Increase of Population (pages 1134 and 1135).—The graphs disclose the fact that the most notable years of large total increase of population of the Commonwealth as a whole were [illegible], 1911, 1912, and 1913. The total increase for 1910 was higher than for any year since 1881, while that for 1912 was the highest on record. The years in which low total increases were noticeable were [illegible], and 1903. The decreases in the years 1915 and 1916 are a direct effect of the war. The great increase in 1919 was due very largely [illegible]

The graph for New South Wales indicates a high total increase of population between 1876 and 1894, advancing to a maximum in 1883, and then declining to 1901. From the latter year onwards to 1907 an advance in the total increase was in evidence, followed by a decline in 1908, and a recovery in 1909, which was maintained in subsequent years to 1912. In 1913, 1914, and 1915 the figures fell continuously, followed in 1916 by a decrease, and a rapid increase since 1917.

Some features of the graph shewing the Victorian total increase are the height attained in 1864, 1870, 1888, 1901, and 1912, the smallness of the increase for the years 1861 and 1875, and the decreases for 1896, 1902, and 1903. The increase fell off in 1913 and 1914 and a decrease was experienced in 1915 and 1916, followed by an increase in 1917 and the following years.

For Queensland it will be seen that the years of high total increases were 1863, 1875, 1883, 1895, 1901, 1909, 1910, 1911, 1913, and 1919 while the years in which these were at very low level were 1869, 1878, 1891, and 1903. In 1914, 1915, and 1916 there was a progressive decline, followed by an increase in 1917, 1918, 1919, and 1920.

In South Australia the total increases were exceptionally high in 1865, 1876, 1877, 1878, 1883, 1892, 1908, 1910, 1911, 1912, and 1919, and correspondingly low in 1870, 1885, 1896, and 1903, while actual decreases took place in 1886, 1888, and 1902. In 1913 there was a slight decline in the total increase, followed by decreases in the years 1914, 1915, and 1916, and increases in 1917, 1918, 1919, and 1920.

In Western Australia the total increase graph indicates no very marked advance until about 1884, from which it rises somewhat rapidly to 1886, and then declines to 1888. This is followed by an exceedingly rapid rise to 1896, and a subsequent fall to 1899, succeeded by a further rise to 1902, and a fall thereafter to 1907, followed by a rise to 1911, a further fall in 1912, and a rise in 1913. Decreases took place in 1888, 1907, 1914, 1915, and 1916.

In the case of the Tasmanian graph, indications of a very varied total increase are in evidence, the principal high points being those for the years 1887, 1891, 1897, 1902, 1907, 1912, 1913, and 1919 while actual decreases were experienced in 1874, 1875, 1892, 1906, 1911, 1914, 1915, and 1916.

7. **Graphs shewing Masculinity of Population, Commonwealth and States** (page 1137).—These graphs furnish information concerning the variations which have taken place in the relative numbers of males and females in the populations of the Commonwealth and the several States during the years 1796 to 1920, and incidentally serve to indicate special features of growth in the respective populations. In general it will be noted that in recent years there has been a marked tendency towards a masculinity of zero, that is, to a condition in which the numbers of males and females in the population were equal, but that with the exception of Victoria and South Australia the masculinity had never fallen below zero prior to the outbreak of war. In 1916 and 1917, however, it fell below zero in all the States except Queensland and Western Australia, and in the Commonwealth as a whole. In 1918 the rates were below zero in the Commonwealth as a whole, and in the States of New South Wales, Victoria, and South Australia. During the year 1920, the Commonwealth as a whole, and all the States except Victoria and South Australia, had an excess of males. The early experience of the Commonwealth exhibits a fairly rapid decline in masculinity to 1812, followed by an even more rapid rise to 1828 and a subsequent fall with a more gentle slope to 1850. From 1850 onwards the decline in masculinity has been fairly continuous though subject to fluctuations. It should be noted that the great variations of the earlier as compared with the later years have been due to a considerable extent to the fact that, owing to the smallness of the population, any considerable influx of male immigrants had a marked effect in increasing the masculinity of the population, while an influx of female immigrants tended to considerably reduce it. Two points of special interest in the graphs of the separate States are the maxima attained in 1852 in Victoria and 1896 in Western Australia, as the result of extensive male immigration consequent on the gold discoveries in the respective States.

APPENDIX.

Recent information and returns which have come to hand since the various sections of this book were sent to press are given hereunder.

SECTION IV.

POPULATION.

§ 1. Commonwealth Population.—Its Distribution and Fluctuation.

1. **Present Population, p. 1120.**—The following table shews the estimated population of each State and Territory and for the Commonwealth on 30th June, 1921 :—

ESTIMATED POPULATION ON 30th JUNE, 1921.

Particulars.	States.						Territories.		C'wealth.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Terr.	Fed. Terr.	
Males ..	1,070,520	756,998	405,685	249,625	177,130	107,113	2,841	1,574	2,771,486
Females ..	1,030,864	778,940	363,279	247,900	155,987	104,871	1,087	1,009	2,683,937
Total ..	2,101,384	1,535,938	768,964	497,525	333,117	211,984	3,928	2,583	5,455,423

SECTION VII.

PASTORAL PRODUCTION.

§ 1. Initiation and Growth of Pastoral Industry.

3. **Increase in Numbers, p. 212.**—The following table shews the estimated number of horses, cattle, sheep, and pigs in the Commonwealth at the latest dates available :—

PRELIMINARY FIGURES.—LIVE STOCK.

States and Territories.	Date.	Horses.	Cattle.	Sheep.	Pigs.
New South Wales ..	30/6/20	660,751	3,075,954	29,077,514	253,336
Victoria ..	1/3/21	487,503	1,575,159	12,171,084	175,275
Queensland ..	31/12/20	741,024	6,455,067	17,404,840	104,370
South Australia ..	30/6/20	264,901	349,562	6,014,565	60,295
Western Australia ..	31/12/20	178,664	849,803	6,532,965	60,581
Tasmania ..	1/3/21	39,117	208,202	1,570,832	38,116
Northern Territory ..	31/12/20	37,837	659,840	6,062	1,416
Federal Territory ..	30/6/20	1,513	8,378	171,739	572
Commonwealth ..	..	2,411,310	13,181,965	72,949,601	693,963

SECTION VIII.

AGRICULTURAL PRODUCTION.

§ 21. Government Loans to Farmers.

4. *Particulars respecting Agricultural and Stock Departments, p. 303.*—*In the following conspectus* will be found particulars concerning the Agricultural and Stock Departments of the several States of

PARTICULARS RESPECTING AGRICULTURAL AND STOCK DEPARTMENTS

Main Features of Organizations.	New South Wales.		Victoria.				Queensland.			
I. Designation of Minister by whom Department is controlled	Minister for Agriculture ..		Minister of Agriculture ..				Minister for Agriculture and Stock			
	Head Office.	Branches.	Head Office.	Agriculture.	Live Stock.	Produce.	Head Office.	Agriculture.	Stock and Brands.	Dairying.
II. Staff on 30th June, 1920—										
Administrative ..	8	34	1	1	1	1	2	8	1	1
Professional ..	..	36	..	19	8	2	23	59	127	29
Clerical	41	45	24	..	13	8	36	1	10	2
Temporary ..	12	234	4	15	58	42	5	..	1	..
General	9	666 (a)	7	18	11	25	10	118	10	..
Total ..	70	1,015	36	53	91	78	76	181	149	32
III. Expenditure, 1919–20	£1,034,748		£229,519				£194,633			
IV. Facilities for Agricultural Education— (i) Agricultural Colleges	Hawkesbury		Dookie, Longerenong ..				Gatton			
(ii) Technical Schools at which Agriculture is taught	*Sydney Technical College* ..		*Working Men's College, Melbourne; Gordon Technical College, Geelong*				*At various Technical Colleges classes are conducted in Milk and Cream Testing, Veterinary Science, Wool Classing and Sorting, Sheep and Wool Training, Sugar Chemistry and Botany*			
(iii) Experimental Farms, Orchards, and Vineyards	Experiment Farms:—Wagga, Bathurst, Wollongbar, Grafton, Cowra, Glen Innes, Yanco, Temora, Berry, Coonamble, Condobolin, Nyngan, Pera Bore, Trangie. Viticultural Nurseries:—Griffith, Howlong, Narara. Miscellaneous:—North Bangaroo Stud Farm, Glenfield Veterinary Experimental Farm, Wauchope Government Apiary		Dookie and Longerenong Agricultural Colleges; State Research Farm, Werribee; Viticultural Station and Farm, Rutherglen; and School of Primary Agriculture and Horticulture, Burnley				State Farms at Hermitage (Warwick), Bungeworgorai (Roma), Warren, Roma, Gindie, and Home Hill. Stock Diseases Experiment Stations at Yeerongpilly, Brisbane, and Townsville. Sugar Experiment Stations at Mackay, Bundaberg, South Johnstone, and Gordonvale. Various Government Experiment Plots at private farms throughout the State. Viticultural Station at Cooomlnya			

(a) Including 578 Ministerial Appointees.

the Commonwealth as at 30th June, 1920. A similar conspectus as at 30th June, 1913, was published in the Official Year Book, No. 7, pp. 364-9. The main features of the organizations are set out under their respective headings, and embrace such items as—(i) staffs, (ii) expenditure, (iii) facilities for agricultural education, (iv) distribution of plants, (v) stock, rabbit, and orchard inspection, (vi) improvement of markets, and (vii) general work of Department. The information has been kindly supplied in each case by the Agricultural and Stock Departments of the several States.

OF THE SEVERAL STATES OF THE COMMONWEALTH.

South Australia.	Western Australia.	Tasmania.
Minister of Agriculture, Irrigation and Mines	Minister for Agriculture ..	Minister of Agriculture
Department of Agriculture and Stock and Brands Department.	Agricultural and Stock Department.	Agricultural and Stock Department.
.. 18 24 21 135	1 14 34 28 156	1 13 9 18 9
198	233	50
£47,458	£107,534	£10,820
Roseworthy	Narrogin	Nil (The Agricultural College which was opened at Deloraine in 1914 is now used as a Boys' Training School)
Adelaide School of Mines ..	Perth Technical School; Fremantle Technical School	Nil
Farms:—Roseworthy, Kybybolite, Turretfield, Booborowie, Veitch Minnipa, Mt. Remarkable Poultry Station:—Pageafield Vineyards:—Roseworthy and Berri Orchards:—Adelaide, Coromandel Valley, Berri, and Kybybolite Experimental plots at 22 centres	Denmark State Farm. Experiment Farms at Merredin and Chapman. Four experimental plots on farmers' holdings—one in each district—have been established at Capel, Balingup, Bridgetown on the South-West line, and at Plesso Siding on the Great Southern line	Two State Farm Orchards

PARTICULARS RESPECTING AGRICULTURAL AND STOCK DEPARTMENTS

Main Features of Organisations.	New South Wales.	Victoria.	Queensland.
IV. Facilities for Agricultural Education—*continued*. Nature and extent of— (i) Agricultural Teaching given in Primary Schools	Instruction in Agriculture, Gardening, and Elementary Science is provided under the heading of Nature Study. The school garden forms a useful aid in supplementing and demonstrating the class-room instruction In High Schools the Intermediate Certificate Examination reaches a fairly high standard in Agricultural Theory, Agricultural Physics, Chemistry (theoretical and practical), Entomology, etc. A teacher of Agriculture has been appointed at several High Schools, and Hurlstone Agricultural High School is entirely devoted to preparing lads for farm life	Elementary Agriculture is taught in a large number of rural elementary schools, and the numbers are steadily increasing. The subject is now taken in 814 schools. The work is largely experimental, and deals with the properties of soils, the growing of common crops, and the principles of manuring	The teaching of Agriculture has a place in a large number of primary schools, especially in agricultural centres. The branches dealt with are:—Planting, Flower and Vegetable Gardening, Farm Work including Experimental Work with Maize, Potatoes, Bananas, Hay and Fodder Crops, Grasses, Manuring, Watering, Conservation of Soil Moisture, Orchard Work, Milk and Cream Testing
(ii) Agricultural Teaching given in Technical Schools	At Sydney Technical College lectures are given on matters relating to Farm, Garden, and other Agricultural work. From time to time field demonstrations are given in pruning, and visits are made to orchards, pig, poultry, and dairy farms, &c. Instruction is also given by correspondence	Agricultural Chemistry, Wool-classing, and Botany	Botany, Sugar Chemistry, Milk and Cream Testing, Veterinary Science, Wool-classing and Sorting
(iii) Work undertaken in Agricultural Colleges	Students are trained for the successful management of stations, mixed farms, irrigation farms, dairy, wheat, piggery, and poultry farms, orchards, vineyards, and apiaries, and for positions as dairy inspectors, milk testers, dairy factory managers, and butter and cheese makers Full courses covering all subjects, and short courses intended for those who are not fitted to take the full course, or who wish to gain information on some special subject are given	Complete course in practical and theoretical Agriculture extending over three years. Short courses of instruction are also held for farmers and farmers' sons	Practical and theoretical Agriculture, pre-eminence being given to the farmer. The curriculum includes Agriculture, Live Stock, Agricultural Chemistry, Botany, Mensuration, Poultry Raising, Veterinary Science, Horticulture, Surveying, Farm Bookkeeping, Farm Engineering, Milk and Cream Testing, Sheep and Wool Classing, Rural Economics, Dairying, Farm Bacteriology, Pig Raising, and Bacon Curing
(iv) Work undertaken on Experimental Farms, Orchards, and Vineyards	The Government Experimental Farms were established to obtain a thorough knowledge of local conditions and to afford an education in Agriculture on scientific lines. The work covered generally includes Dairying, Orcharding, Wheat Growing, Irrigation, Sheep-breeding, Pig-raising, and Poultry Breeding. Various systems of rotation of crops, the comparative values of different fertilisers, and methods of soil culture are tried with regard to their suitability to the district and commercial values. Experiments relating to problems of Dry Farming and the application of Artesian Bore Water to Agriculture are made at several of the farms.	Research work, Experiments and Practical Demonstrations in all branches of Agriculture and Live-stock Husbandry. The purpose of these farms is to confer on Agriculture the benefits of modern scientific advances by the prosecution of investigations and trials under practical and accurately recorded conditions concerning the problems involved in increasing the agricultural output of the State in regard to— (a) Improvement of wheat and other cereals, grasses, and economic plants by selection and hybridization; (b) Soil renovation, fertilising, and tillage methods;	Experimental and Acclimatisation work, Stock Breeding, Hybridization, Object Lessons in Cultivation, Orchard work, and investigations into Stock Diseases

OF THE SEVERAL STATES OF THE COMMONWEALTH—*continued.*

South Australia.	Western Australia.	Tasmania.
No systematic agricultural teaching in Primary Schools. Experimental elementary Agriculture taken up by individual teachers — result satisfactory. Work optional, but not widespread	Primary Schools:—Elementary courses bearing on Agriculture are given in Classes IV. to VI. Definite project work in connexion with Agriculture is undertaken in some of the country schools in Poultry-keeping, Bee-keeping, Pig-keeping, and the growing of Vegetables, Cereals, Fodders, etc. Manual work is also undertaken, Woodwork being the commonest form, while Forge work is taken in a few schools. Farm Bookkeeping is being introduced for the older children Secondary Schools:—The District High Schools give courses in Agricultural Science. In a country High School that is just opening, preparations are being made for a varied course in Agricultural work, including the growing of Cereals, Vegetables, Fodders, and Fruit. Bee-keeping and Fruit Preserving will also be taught	Nil
Lectures and agricultural practical work, Viticulture, Fruit culture, Botany lectures in conjunction with School of Mines and also by Horticultural Instructor	Wool-classing is taught in the Technical Schools at Perth and Fremantle. Many students also attend classes in Carpentry, Plumbing, and Blacksmithing with a view to qualifying themselves for farm life	Nil
The training of young men in the practice of science of Agriculture, Viticulture, Dairying, and Stock. Experimental and Research work	At Narrogin there is a School of Agriculture, which provides a two-year course for boys of fourteen years and over. There is a farm of over 2,000 acres attached. A dairy herd, and sheep, pigs, and poultry are kept. The boys learn Carpentry, Blacksmithing, Plumbing and Saddlery, as well as the care of horses and stock, and the ordinary farm operations. Lectures are delivered on economic insect pests with practical demonstrations in the preparation and application of sprays	Nil
Experimental work in Manuring, Irrigation, Rotation of Crops, Stock Rearing, Breeding and selection of Cereals General cultural work of farm, orchard, and vineyard	Dairying and Pig-raising, Cultivation of Fodders, Crops, and Grasses, and Ensilage Making The experimental plots referred to above have been established for the purpose of growing fodder plants so as to demonstrate to settlers what fodders are most suitable for their districts	In so far as the Orchards are concerned, Experiments in Manuring, Spraying for different diseases, Pruning and the Growing of Fruit-tree Stocks

PARTICULARS RESPECTING AGRICULTURAL AND STOCK DEPARTMENTS

Main Features of Organizations.	New South Wales.	Victoria.	Queensland.
IV. Facilities for Agricultural Education—*continued.* (iv) Work undertaken on Experimental Farms, Orchards, and Vineyards—*continued.*	Viticultural nurseries are established for experiments in growing wine and table grapes, also for the purpose of supplying vignerons with vines grafted upon phylloxera-resistant stocks; in some cases the phylloxera-resistant rootlings are supplied The Apiary at Wauchope is utilized for the study of diseases among bees. A small number of students is admitted and short courses in Apiculture are conducted from time to time With the object of improving the stock of the State, pure-bred studs have been established at several of the farms. Selected animals of the best strains are purchased and imported from time to time, and the progeny sold to farmers at reasonable rates	(*c*) Rotation of crops and improved cropping practices; (*d*) Irrigated crops—particularly lucerne; (*e*) Improvements of natural pastures, and trials of artificial grassing with exotic and native grasses (*f*) The breeding and feeding of live stock, and improvement of milk yields (*g*) Research concerning soil moisture, temperatures, biological conditions, and nitrification processes; and the nutrition of plants; (*h*) Meteorological observations relating to Agriculture In addition to the above, pure seed is raised for distribution among farmers, and in the nursery connected with the Rutherglen establishment large numbers of phylloxera-resistant stocks are raised and distributed, and investigational work connected with the propagation and cultivation of the vine and manufacture of wine is carried out	
(v) Instruction given by Travelling Dairies, etc.	During the winter months schools are conducted for the examination of dairy factory employees in Cream Grading and Milk and Cream Testing, and successful students are given certificates of competency. The Dairy Industry Act prescribes that only persons who have so qualified will be permitted to test or grade milk or cream In addition to the above, a number of Dairy Instructors are employed by the Department to give instruction in Butter and Cheese Manufacture, conduct experiments, and enforce the provisions of the Act regarding the compulsory grading of cream and the packing of butter under brands denoting the quality	None now employed. Demonstrations are given in the method of control of contagious diseases of stock and also on Milk and Cream Dairy Practice. Classes are being arranged in order to impart knowledge on general Factory Management, Grading and Testing of Milk and Cream, Pasteurization, and Manufacture of Butter and Cheese. Practical instruction is also given by experts in Cheese Making, Fruit Preserving, Drying, etc., Flax Manufacture, Poultry Dressing, etc.	None are now employed. Instructors in Butter and Cheese Making personally visit the different factories, while the Dairy Inspectors are out all the time giving advice at the farms on the routine of the dairy
(vi) Lectures given by Experts	Lectures are given by Inspectors of Agriculture on the growing of cereals, etc. Lectures and Demonstrations are also given by the Poultry Expert, Dairy Expert, Entomologist, Biologist, Agrostologist, Veterinary Officers, Assistant Chemist, etc. Special features of the work are Demonstrations in Pruning and Spraying, and the Handling, Drying, Canning, and Packing of Fruit given by the staff of the Fruit Expert	Agricultural Classes, Free Lectures and Practical Demonstrations are given by departmental experts throughout the State under the auspices of local Agricultural and other Associations	Lectures are given by the technical instructors on all Agricultural, Horticultural, and casual subjects The local Farmers' Society provides the hall, attends to advertising, etc., and the lectures are free to all The Departmental tendency is, however, more in the direction of practical personal instruction at the farm

OF THE SEVERAL STATES OF THE COMMONWEALTH—*continued.*

South Australia.	Western Australia.	Tasmania.
Nil	.. .. ..	A School of Instruction for Factory Managers is held annually, covering a period of two weeks. Lectures and Demonstrations are given on Butter and Cheese Making, Pasteurizing, Neutralizing, Pure Cultures for the Ripening of Cream, Chemistry of Dairying, Refrigeration, and Cream and Butter grading. This School is organized by the State Department of Agriculture, and includes lectures and demonstrations on Cattle Diseases, First Aid, etc., by the Veterinary Officers, Hygiene, Drainage, etc., by the officers of the Department of Public Health The Commonwealth Dairy Expert and his officers also render assistance in the various subjects The State Dairy Expert and Dairy Supervisor visit both factories and dairies for instructional purposes, and periodical schools are also held for sons of farmers
Lectures and Practical Demonstrations are given by the Departmental Experts in various parts of the State	Lectures on matters pertaining to Fruit Growing, treatment of Insect Pests and Fungoid Diseases, Dairying, Pig-raising, Sheep Farming, Wool, Wheat, Fertilizers, Grasses and Fodder Plants, and Stock are given by Departmental Experts in various districts throughout the course of the year	Lectures are given by the various Experts of the Department at intervals upon the Insect and Fungus Pests of Fruits, Potatoes, and other commercial crops; on all Dairying subjects; on Drainage, Pruning, Tree and Plant Physiology, Soils, Fertilizers, Co-operation, Marketing of Fruit, Small Fruit Culture, and on other matters dealing with the fruit industry generally

PARTICULARS RESPECTING AGRICULTURAL AND STOCK DEPARTMENTS

Main Features of Organizations.	*New South Wales.*	*Victoria.*	*Queensland.*
IV. Facilities for Agricultural Education—*continued.* (vii) Other forms of Agricultural Instruction	The State is allotted into districts, each supervised by a District Inspector, who visits farmers for the purpose of advising on agricultural operations and generally to connect up the work of Government Experimental Farms with the everyday work of the farm. Each month, the "Agricultural Gazette" is issued, and bulletins dealing with agricultural subjects are published. Weekly notes are circulated throughout country newspapers supplying the latest agricultural information An Agricultural Bureau has been established, with 130 branches throughout the country to enable the farmers to meet and exchange ideas on subjects of common interest. The Department assists by lectures and demonstrations, supplies literature and financially subsidises the members' subscriptions to the extent of 10s. in the £1	Bulletins are issued from time to time dealing with all phases of production. A monthly "Journal of Agriculture" is issued, and this contains articles prepared by Departmental specialists. An extensive correspondence is also carried on with producers	Monthly issue of the "Agricultural Journal" and pamphlets on given subjects; practical demonstrations in the building of silos; pruning, budding, and cultivating; methods of inoculating cattle; the application of insecticides and fungicides; the establishment of experiment plots on private farms; displays at shows to demonstrate the value of improved methods and the possibilities in the direction of new crops
V. General work of Department— (i) Extent to which distribution of plants is carried out by Department, and General Regulations governing such distribution	Approximately 100,000 plants are distributed annually, although in some good seasons the numbers are considerably more. Soldiers on Settlement Areas are supplied with suitable trees and shrubs. Plants are sent to public bodies, the season beginning with June and ending with August each year. It is stipulated that plants raised at the public expense cannot be issued for planting on private property	Select-bred seed wheat, oats, and barleys are grown for distribution among farmers, and are sold in small parcels to farmers at market rates. Phylloxera-resistant stocks are also raised and sold for the re-establishment of vineyards ravaged by phylloxera	The general distribution of seeds by seedsmen is controlled by the Expert under the Pure Seeds Acts. Trees for shade for Public Institutions and Schools are provided free, while seeds of crops which the Department desires should be given a trial in the State are from time to time issued free to farmers. Free Cotton seed is supplied to intending growers, and in abnormal seasons seed wheat is supplied to growers on reasonable terms
(ii) Number of Inspectors employed—			
(a) Fruit and Orchard Inspectors	20 Permanent, 13 part-time	26	24
(b) Stock Inspectors	74	11	88
(c) Rabbit Inspectors	1	60	4
(d) Other Inspectors	28, including 14 Dairy Inspectors	78	51, including 29 Dairy Inspectors

OF THE SEVERAL STATES OF THE COMMONWEALTH—*continued.*

South Australia.	Western Australia.	Tasmania.
Nil	Visits to individual farms, especially returned soldiers and new settlers just embarking on farming. Advice and Demonstrations given in Skirting and Rolling of Fleeces, Pruning, Packing, Grafting, and Budding. Practical instruction in Testing, Butter Making, General Manufacture, and Cream Grading is given at butter factories, and visits are made to insect-infested districts to advise the best remedial measures	The Fruit Division has several experimental areas on private properties, that is to say, portions of orchards in different Districts where Spraying, Pruning, and Manuring Experiments are being conducted. The results of these will be published periodically. Schools of instruction in Packing and Grading of Apples and Pears are being held in every fruit centre. *First and Second Class Certificates* are issued to those passing the required examination. Towards the end of last season, in conjunction with the Education Department, classes of children for Packing and Grading were inaugurated, and during the present season, these will be extended
Special varieties of cereals and fodder crops are distributed free, chiefly from the Agricultural Bureaux. Large quantities of selected cereals are raised at the various farms for sale	Seeds are distributed in small quantities by the Wheat Branch, to ascertain their suitability for particular conditions. From time to time a distribution of seed for fodder crops and grasses grown at State farms is made. Seeds are distributed to schools and demonstrations are arranged in connexion therewith	The only plants distributed by the Department are Conifers, which are sold at £1 per 100. Last year, however, a limited number of apple stocks (*Pyrus malus baccata* seedlings) were delivered out of the nursery.
Full time, 9; part time, 15 ..	Permanent, 9; temporary, 5	17
Permanent, 13; temporary, 6	Permanent, 5; temporary, 6	25
2	Permanent, 9	All Inspectors of Stock are also Rabbit Inspectors
2	Permanent, 3	Same officers appointed under other Acts

PARTICULARS RESPECTING AGRICULTURAL AND STOCK DEPARTMENTS

Main Features of Organizations.	New South Wales.	Victoria.	Queensland.
V. General work of Department — *continued*. (iii) Acts under which the Prevention of diseases in stock and plants and the eradication of noxious animals, insects, and weeds are carried out	Stock Act 1901 Stock Diseases (Tick Act) 1901, 1915 Pastures Protection Acts 1912, 1918, 1920 Vine and Vegetation Diseases and Fruit Pests Act 1912 Prickly Pear Destruction Act 1901 Fruit Cases Act 1912 Apiaries Acts 1916, 1917 Native Dogs Destruction and Poisoned Baits Act 1902 Dairies Supervision Act 1901 Department of Agriculture Act 1907	Vegetation and Vine Diseases Act 1915 Stock Diseases Act 1915 Dairy Supervision Act 1915 Bees Act 1915 Sheep Dipping Act 1915 Thistle Act 1915 Vermin Destruction Act 1915 Fruit Acts 1915, 1917, 1920 Mildura Vineyards Protection Act 1918	Dairy Produce Act 1920. Dingo and Marsupial Destruction Act 1918 Diseases in Plants Act 1916 Diseases in Stock Act 1915 Rabbit Acts 1885, 1889, 1913 Marsupial Proof Fencing Acts 1898, 1913 Prickly Pear Destruction Acts 1912, 1913 Fruit Cases Acts 1912, 1916
(iv) Special features of Entomological or other work of the Department	A field laboratory and experiment station is established at Willow Tree for Sheep Fly Investigation, and a fly aviary and breeding-room for the breeding and the distribution of the sheep-fly parasite has been built at Glenfield. Insectaries are situated at the Botanical Gardens to provide facilities for the study of the life-history and development of various insect pests under natural conditions, and at Narara, in the centre of the Gosford fruit-growing area, to deal with orchard insect pests such as fruit-fly, scale insects, etc. Extensive experiments are carried out regarding the most effective methods of protecting stored maize from insect pests, and the treatment of timber with protective mixtures to obviate the attacks of the powder-post beetle. The work carried out by the Biologist includes the examination of specimens of Cereals, Fruit, Fruit Trees, and Truck Crops for the presence of disease; the issue of bulletins and leaflets on plant diseases and their control; and the investigation of new plant diseases. A considerable amount of time is taken up with bacteriological examinations of Milk, Butter, Cheese, and Cream, samples of which are forwarded by butter factories for opinion as to the presence of harmful bacteria. Regular supplies are also made of pure cultures of bacteria which are used as "starters" in butter factories. Biological examinations are also made of wines, preserves, seeds, frozen rabbits, etc.	Economic Entomology, Vegetable Pathology, Botany, and Biology lectures to farmers, horticulturists, etc., on fungus, insect and other pests, and the means adapted for their eradication and prevention. Field experiments with fungicides, insecticides, etc. Cultivation of pure yeasts for wine making, bacteriology of soils, etc.	The investigation of the Sugar Cane Grub, diseases of the Banana, and all insect and fungus pests affecting the fruits growing in the State, the Cattle Tick and Blow-fly pest

Appendix.

OF THE SEVERAL STATES OF THE COMMONWEALTH—*continued.*

South Australia.	Western Australia.	Tasmania.
The Vine, Fruit, and Vegetable Protection Acts 1885, 1910 *Phylloxera Acts 1899, 1911* Stock Diseases Acts 1888, 1903, 1915, 1916 Scab Act 1859 Sparrow Destruction Acts 1889, 1921 Wild Dogs Acts 1912, 1914, 1919 Vermin Acts 1914, 1916, 1919 *Thistle and Bur Acts 1862*, 1887 Noxious Weeds Destruction Act 1891 Ligurian Bee Act 1885 Foul Brood among Bees Act 1887	Plant Diseases Act 1914 Noxious Weeds Act 1904 *Stock Diseases Acts 1895, 1903* Droving Acts 1902, 1919 Rabbit Act 1902 Vermin Acts 1918, 1919 Vermin Boards Acts 1909, 1915 Destructive Birds and Animals Act 1893 Fruit Cases Act 1919 *Scab Acts 1888, 1891, 1893*, 1894 Contagious Diseases (Bees) Act 1899	An Act to prevent the Importation of Diseased Sheep into this Island or its *Dependencies, 1858* Scab Acts, 1875, 1877, 1879, 1888 Stock Acts, 1889, 1905, 1914 Diseased Animals Importation Prevention Acts, 1883, 1887, 1910 Contagious Diseases (Cattle) Acts, 1861, 1880, 1896, 1901, 1909, 1912, 1918 Potato Diseases Act 1909 (2), *1910, 1914* Dairy Produce Acts 1910, 1919 Codlin Moth Acts 1888, 1891, 1900, 1912 San José Scale Act 1915 Californian Thistle Acts 1883, 1884, 1887 Rabbits Destruction Acts 1889, 1893 Department of Agriculture Act 1911 Vegetation Diseases Act 1898 Importation of Diseased Grape Vines Prohibition Act 1878
Work confined to economic phases of Entomology and Vegetable Pathology aims at identifying and instructing primary producers in the detection of different insects and fungi, and the application of remedies; tests conducted with fungicides and insecticides, and uses demonstrated	Collecting, mounting, and classifying of orchard, garden, stock, and forest insects, the study of their life-histories and recommendations for treatment. The examination of imported timber and other articles under the Federal Quarantine Act. The compilation of Bulletins, etc.; the importation of beneficial insects, their breeding and distribution. Lectures are delivered in any district requiring same on local pests	The work of the Microbiologist deals with Entomology, Bacteriology and Mycology as related to commercial crops and dairy products Bulletins dealing with all fungus and insect pests are published and distributed gratis, and demonstrations are given as required in the making and using of sprays and other insecticides and fungicides

PARTICULARS RESPECTING AGRICULTURAL AND STOCK DEPARTMENTS

Main Features of Organizations.	New South Wales.	Victoria.	Queensland.
V. General work of Department — *continued.* (v) Special steps taken by the Department for distribution of information— (*a*) Amongst the agriculturalists of the State	Distribution of "Agricultural Gazette," Bulletins, and Pamphlets, and the insertion in country newspapers of weekly agricultural notes	"Journal of Department of Agriculture" and publications on special subjects. The Department has a special pavilion at the Royal Agricultural Show Grounds, Flemington, where a very comprehensive exhibition of agricultural and live stock products is staged during Royal Show week. In addition exhibits are sent to the principal country shows to illustrate the teachings of the Department. Farmers' Field Days are held annually at Werribee, Dookie, and Longerenong, and at many of the experimental plots. These are attended by large numbers of farmers	The practically free distribution of the "Queensland Agricultural Journal" and pamphlets; object lessons at the Agricultural College, State Farms, and private farms; displays at shows; co-operation with the public press in the dissemination of agricultural information
(*b*) With a view to improving the market for the State's products	*Reports from the* Agent-General are published in the press, and a Commercial Commissioner is located at Kobe, Japan	*Agent-General* is supplied with samples of produce, etc., which are exhibited in Great Britain. Cool storage provided by Government to assist export trade. Companies assisted by way of loan to build fruit cool stores and undertakings for the treatment of primary farm products. Inquirers are supplied with lists of producers and exporters, and information is given regarding marketing	By close *inspection of* exports; by the collection and distribution of information from markets where business may possibly arise
VI. Any other work undertaken	Nil	Nil	Assisting in the development of both new and old primary industries; for instance, the Department pays a minimum price on all raw cotton and coffee that may be grown in the State. The cotton and the coffee is ginned and hulled respectively by the Department and the resultant product is disposed of on owners' accounts. The wool clips of small farmers are classed and sold to the best advantage on owners' account, and beginners in dairying may be financed for the purchase of dairy cattle and pigs and the erection of silos

OF THE SEVERAL STATES OF THE COMMONWEALTH—*continued.*

South Australia.	Western Australia.	Tasmania.
Agricultural Bureau with 215 branches established; the latter meet at intervals, and matters relating to Agriculture discussed. "Journal of Department of Agriculture" published monthly. Special bulletins and pamphlets on Agriculture and other matters published at intervals. Departmental library open to those interested	Bulletins and articles in the press are published from time to time relating to Dairying, Pig Raising, and matters of interest to wheat growers and sheep farmers. Exhibits are made at shows, and Field Demonstrations given at Experimental Farms	At the principal Agricultural Shows, instructional or educational exhibits are displayed on various subjects of interest to the Fruit, Dairy, Stock, and Agricultural Industries Dairying:—The Dairy Supervisors are located in Districts, and are continually moving amongst the dairymen for the purpose of giving instruction, and securing detailed information of conditions. Their reports are sent regularly to the Head Office, and dealt with by the Dairy Expert
The Government Produce Department forwards periodically samples of dried and bottled fruits, timber, skins, wool, grain, etc., for exhibition by the Trade Commissioner at various Trade Shows held throughout the United Kingdom	*Nil*	Fruit:—Last year the Department employed in Sydney a representative, who also periodically visited *Brisbane, and notified the* Department *re* the state of the markets. The Department published a report thereon The Fruit Division is continually in touch with the Markets' Commissioner in Canada and officials in the United States of America, and upon receipt of information from these sources, publishes same. The Department keeps in touch also with the Agent-General, who from time to time cables reports from England. The reports are in due course published
General assistance to the Department of Repatriation in instructing discharged soldiers and settling men on the land	Testing of pure-bred dairy herds; Horse Breeding Station at Jingalong; Camel Breeding Station at Dromedary Hills; advising settlers on irrigation, drainage, stock, and domestic water supply; supplying rough plans to scale; grading for irrigation, and taking levels for drainage. Steps are taken to inspect potatoes and other vegetables in order *to prevent the spread of disease,* also all potatoes and onions which arrive from outside the *State are inspected on arrival,* and, if affected by certain diseases, are condemned. All *fertilizers must be registered,* and samples are taken from time to time and submitted to the Government *Analyst* to ascertain whether they are up to the required standard, and, if not, proceedings are taken against the vendor. Inspections are made of all fruit trees, vines, etc., in nurseries before being lifted	Nil

SECTION XII.

MINES AND MINING.

§ 1. The Mineral Wealth of Australia.

3. **Value of Production during 1920, p. 337.**—The following table gives the value of Commonwealth Mineral Production in 1920 :—

COMMONWEALTH MINERAL PRODUCTION, 1920.

Minerals.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
Gold	284,887	880,945	671,210	9,886	3,598,920	40,863	5,495,720
Silver and Lead	123,481	1,714	135,559	2,646	190,484	300,035	762,919
Copper ..	127,978	..	1,551,995	423,601	25,165	528,237	2,656,976
Iron	650,693	..	24,852	478,436	..	7,346	1,161,327
Tin	413,794	12,815	252,054	..	49,449	369,362	1,097,474
Wolfram ..	2,212	175	14,027	..	..	13,626	30,040
Zinc	249,456	..	..	..	..	334	249,790
Coal	7,723,355	528,919	841,551	..	350,346	64,005	9,508,176
Other ..	1,070,852	48,576	152,475	242,850	19,540	99,363	1,623,656
Total ..	10,646,708	1,472,144	3,643,723	1,157,419	4,233,913	1,432,171	22,586,078

NOTE.—Gold, valued at £5.825 per fine oz. Northern Territory particulars not yet available.

SECTION XIX.

COMMONWEALTH FINANCE.

§ 1. General.

2. **Accounts of Commonwealth Government, p. 666.**—The Budget for 1921-22 was introduced on 29th September, 1921. In connexion with the statements which follow, it must be remembered that the figures for 1920–21 are not final, but subject to a slight revision, whilst the figures for 1921–22 are estimates. Excluding the amounts paid as subsidy to the States, the Consolidated Revenue Account stands as follows :—

COMMONWEALTH REVENUE AND EXPENDITURE, 1920–21, 1921–22.

Particulars.	1920–21	1921–22 (estimated).
	£	£
Net Revenue	58,677,445	54,764,850
Expenditure	57,783,924	57,581,958
Surplus	893,521	..
Deficit	..	2,817,108

The result of the estimated deficit of £2,817,108 in the latter year will be to reduce the credit balance of £6,618,327 at 30th June, 1921, to one of £3,801,219 at 30th June, 1922.

§ 2. Consolidated Revenue Fund.

(B) Revenue.

3. **Sources of Revenue, p. 668.**—The following table gives the Commonwealth Revenue from each source during the years 1920–21 and 1921–22 :—

SOURCES OF COMMONWEALTH REVENUE, 1920–21 AND 1921–22.

Source of Revenue.	1920–21.	1921–22 (estimated).
	£	£
Customs	21,731,210	16,105,000
Excise	10,078,696	10,026,000
Land Tax	2,155,699	2,250,000
Income Tax	14,351,408	15,000,000
Succession Duties	1,179,513	1,150,000
War Time Profits Tax	2,083,139	2,000,000
Entertainments Tax	649,828	750,000
Total Taxation	52,229,493	47,281,000
Post Office	8,586,497	9,311,000
Miscellaneous	4,701,618	5,195,350
Gross Total	65,517,608	61,787,350
Less Paid to States	6,840,163	7,022,500
Net Revenue	58,677,445	54,764,850

(C) Expenditure.

2. **Total Expenditure, p. 680.**—The expenditure by the Commonwealth for the years 1920–21 and 1921–22 is shewn in the following table :—

COMMONWEALTH EXPENDITURE, 1920–21 AND 1921–22.

Particulars.	1920–21.	1921–22.
	£	£
Ordinary expenditure	23,586,441	25,467,455
War expenditure	33,286,233	31,203,253
Interest (States)	911,250	911,250
Total	57,783,924	57,581,958

18. **Cost of the War, p. 687.**—The estimated war expenditure up to 30th June, 1922, is £481,630,600, of which £135,205,493 comes from revenue, and £346,425,107 from loan. To this must be added £49,082,059 owing to the British Government, and £28,000,000 for war gratuities. The expenditure for the two years under review is as follows :—

WAR EXPENDITURE.

Items.	1920–21.	1921–22 (estimated).	Total.
	£	£	£
From loan	24,148,501	33,286,233	57,434,734
From revenue	11,196,000	31,203,253	42,399,253

The expenditure from loans has defrayed the direct cost of the war, and most of the cost of repatriation. The expenditure from revenue pays for interest, sinking fund, pensions, and the incidental charges of the war.

§ 4. Commonwealth Public Debt.

6. **Total Commonwealth Public Debt, p. 696.**—The situation of the Federal Public Debt is best set out in tabular form as follows :—

PUBLIC DEBT OF THE COMMONWEALTH AS AT 30th JUNE, 1921.

Particulars.	—	—
	£	£
War Loans in Australia	..	232,819,660
War Savings Certificates	..	2,004,870
War Savings Stamps	..	7,388
Treasury Bills	..	2,000,000
War Loan, London, 1931–41	..	5,000,000
Accrued Deferred Pay, A.I.F.	..	14,720
Indebtedness to Imperial Government	..	92,480,156
War Gratuity	..	25,279,925
Total War Debt	..	359,606,719
Inscribed Stock and Bills	..	9,858,869
Northern Territory and Oodnadatta Railway Loans ..	..	3,968,298
Transferred Properties	..	11,536,139
Loans raised for States	..	16,750,000
Gross Debt	..	401,720,025
Deduct—		
Loans raised for States	16,750,000	
Loans for Settlement, Wheat Silos, &c.	27,927,466	
Expenditure on War Service Homes	11,691,169	
Present Capital Value of Ships	7,137,328	
Unexpended balance of Loan Moneys	6,205,030	
		69,710,993
Net Debt at 30th June, 1921	..	332,009,032

SECTION XXI.

PRIVATE FINANCE.

§ 1. Currency.

2. **Receipts and Issues in 1919, p. 746.**—The issues of coin and bullion for the year 1919 are given in the following table :—

ISSUES OF GOLD FROM AUSTRALIAN MINTS DURING 1919.

Mint.	Coin.			Bullion.	Total.
	Sovereigns.	Half Sovereigns.	Total.		
	£	£	£	£	£
Sydney	1,835,000	..	1,835,000	117,001	1,952,001
Melbourne ..	514,257	..	514,257	239,848	754,105
Perth	2,995,216	56,786	3,052,002	186,081	3,238,083
	5,344,473	56,786	5,401,259	542,930	5,944,189

3. Total Receipts and Issues, p. 747.—The total issues of gold up to the end of 1919 are shewn below :—

TOTAL ISSUES OF GOLD FROM AUSTRALIAN MINTS TO END OF 1919.

Mint.	Coin.			Bullion.	Total
	Sovereigns.	Half Sovereigns.	Total.		
	£	£	£	£	£
Sydney ..	135,185,500	4,781,000	139,966,500	6,963,253	146,929,753
Melbourne ..	140,297,250	946,780	141,244,030	11,742,547	152,986,577
Perth ..	85,197,202	314,130	85,511,332	8,178,039	93,689,371
Total ..	360,679,952	6,041,910	366,721,862	26,883,839	393,605,701

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